JANUARY 1955

BUTANE-PROPANE News

Headquarters for L.P. gas Information Since 1931

STACK

Review and Forecast Issue

17½ TECHNOLOGY

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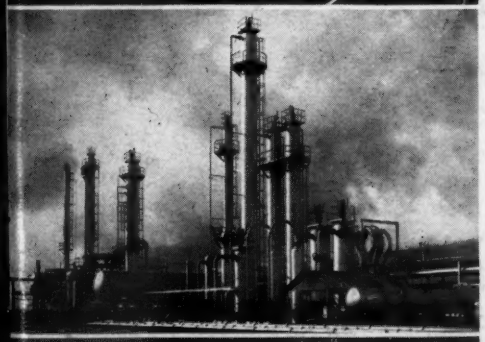
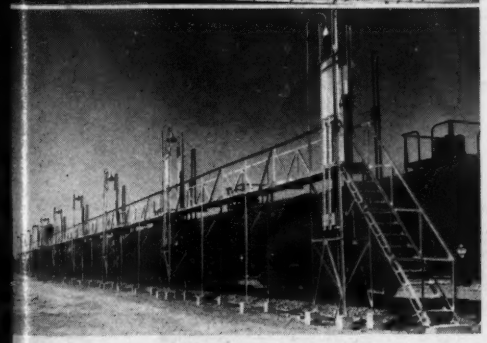
Happy New Year 5 ways...

... when you CONTRACT with ANCHOR





1

wholesale only

Anchor has no retail outlets or financial interest in such outlets. Our only interest is in serving our contract customers better . . . a dependable supplier, never a competitor.

2

highest quality

Anchorgas is the best butane and propane. Every care is taken, in production, transportation and storage, to make certain that Anchorgas is the best fuel you can get, maintained at NGAA standards.

3

dependable supply

Anchor's many plants, huge fleet of tank cars and vast underground storage installations assure you of supplies of LPG through any season to meet your need.

4

specialized engineering service

Anchor now offers experienced engineering service with specialized knowledge of LPG problems and installations. This service is available to you for advice or complete planning and construction.

5

friendly help

Anchor men have many years of experience in the LPG industry. They understand your problems, and can help. They'd like to hear from you—Call Tulsa 2-7261.

ANCHOR

PETROLEUM COMPANY • TULSA

SALES OFFICES: Des Moines • Shreveport • Toledo • Houston • Long Beach
San Francisco • Okla. City • Westfield, Mass. • Midland, Texas • Bath, N. Y.

Now..Hackney Lift Truck

Open up a promising new market

Lift Trucks...the Next Big Market for LP-Gas

Many fork and lift truck operators are just now learning about the advantages ot LP-gas as a motor fuel. They are enthusiastic about the dollar savings possible with this superior fuel. And they like the absence of objectionable exhaust fumes, because their trucks are so often used indoors.

Here's a promising new market for expanding your LP-gas sales. You'll find lift trucks operating in most any sizable factory, plant, warehouse, terminal or shipping room. And you'll find it convenient and profitable to service this growing market with Hackney cylinders and fuel tanks especially designed for lift truck applications.

Hackney Pioneers Again

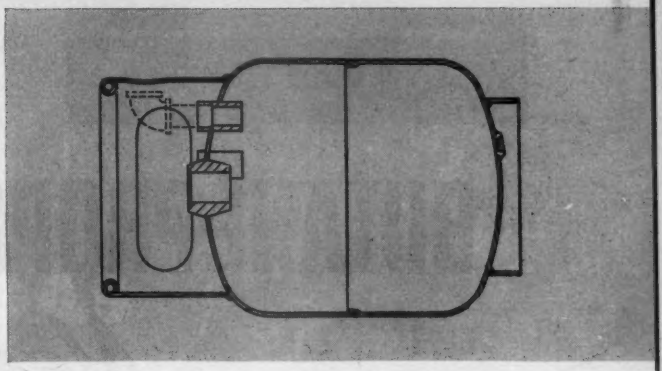
Remember, Hackney Cylinders are backed by the skill and experience of Pressed Steel Tank Company—the company which has manufactured more LP-gas cylinders than any other—the company which introduced the first two-piece drawn cylinder in 1932—which made the first lightweight cylinders fabricated of high strength steel—and which continually pioneers in improving cylinders for the LP-gas industry.

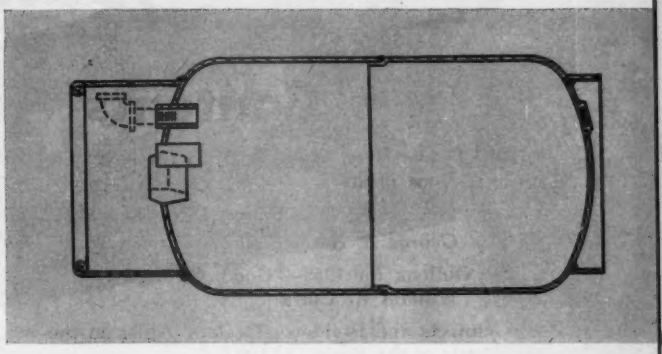
We've pioneered in developing a full line of fuel tanks and removable cylinders to meet lift truck requirements, too, and now offer three standard sizes and various models with fittings and protective collars located to meet the requirements of individual lift truck manufacturers.

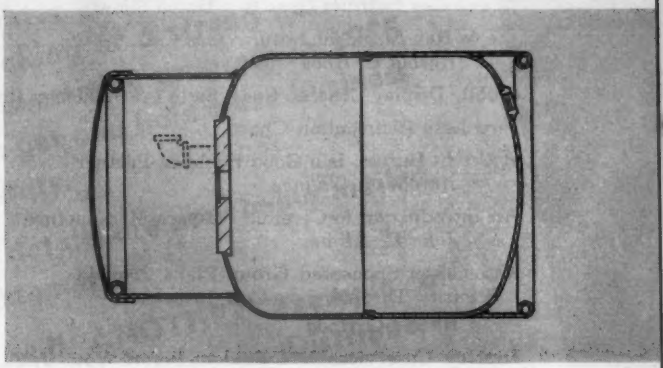
Now Hackney Offers the Selling Help You Need

Start developing your lift truck market right now by telling the operators in your area the basic facts about LP-gas as a motor fuel. Explain longer engine life, reduced maintenance, low fuel cost, long lube oil life,

Hackney Lift Truck Cylinders Are Designed To Help You Sell Good Service To Your New Lift Truck Customers







- Comply fully with the requirements of NBFU Pamphlet #58, as well as ICC-4B and 4BA-240 Specifications.
- Two-piece construction, with single circumferential weld, for neatness, light weight and extra strength.
- Ruggedly constructed for years of service. Strong, protective collar safeguards the valves.
- Equipped with quality fittings, including internal relief valve and visible float gauge.
- Valves and fittings are conveniently grouped for easy, timesaving servicing.
- Thoroughly tested and inspected. Interiors cleaned and dried.
- Three standard sizes of removable ICC cylinders available for immediate delivery from stock. These are of 20, 33½ or 43½ pounds capacity (Propane), in both vertical and horizontal models. Permanently mounted ASME tanks are also available.

Write for additional specifications

Cylinders

for you!

clean exhaust, BTU content, octane rating—all the advantages you know so well, but which may be welcome news to lift truck operators.

Write us today for helpful information on the specialized requirements of servicing lift truck fleets. We'll send you a list ot lift truck manufacturers who now have LP-gas operated models, as well as names of companies offering lift truck conversion equipment. We'll include ammunition on possible fuel savings in this field, a report on the experiences ot well-known users, and reasons why LP-gas is especially suitable for certain conditions peculiar to lift truck operation. Address your request to the nearest branch office, or to Pressed Steel Tank Company, Milwaukee 14, Wis.

Hackney MILWAUKEE

Pressed Steel Tank Company

Manufacturer of Hackney Products

DOWNINGTOWN IRON WORKS INC. DIVISION

1487 S. 66th St., Milwaukee 14 • 52 Vanderbilt Avenue, Room 2099, New York 17 • 227 Hanna Bldg., Cleveland 15 • 936 W. Peachtree St., N. W. Room 112, Atlanta 3 • 208 S. LaSalle St., Room 790, Chicago 4 • 552 Roosevelt Bldg., Los Angeles 17 • 18 W. 43rd St., Room 13, Kansas City 11, Mo. 138 Wallace Ave., Downingtown, Pa.—Downingtown Iron Works, Inc., Division

LP-GAS CONTAINERS FROM ONE POUND TO 30,000 GALLONS

TECHNOLOGY
1669765

JANUARY 1955

BUTANE-PROPANE NEWS

VOLUME 17 • NUMBER 1

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OUR NEW YEAR'S *Announcement*

Every Distributor of WARRENGAS will have the backing of a strong national consumer advertising program in 1955 to help him get and hold more business in his territory.

Complete details are now being mailed to our customers.

This is still ANOTHER example of better service enjoyed by Distributors of WARRENGAS.

SALES OFFICES

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FT. WORTH, TEXAS
NEW YORK, N. Y.
MADISON, WISCONSIN
MOBILE, ALABAMA
HOUSTON, TEXAS
MIDLAND, TEXAS
OMAHA, NEBRASKA
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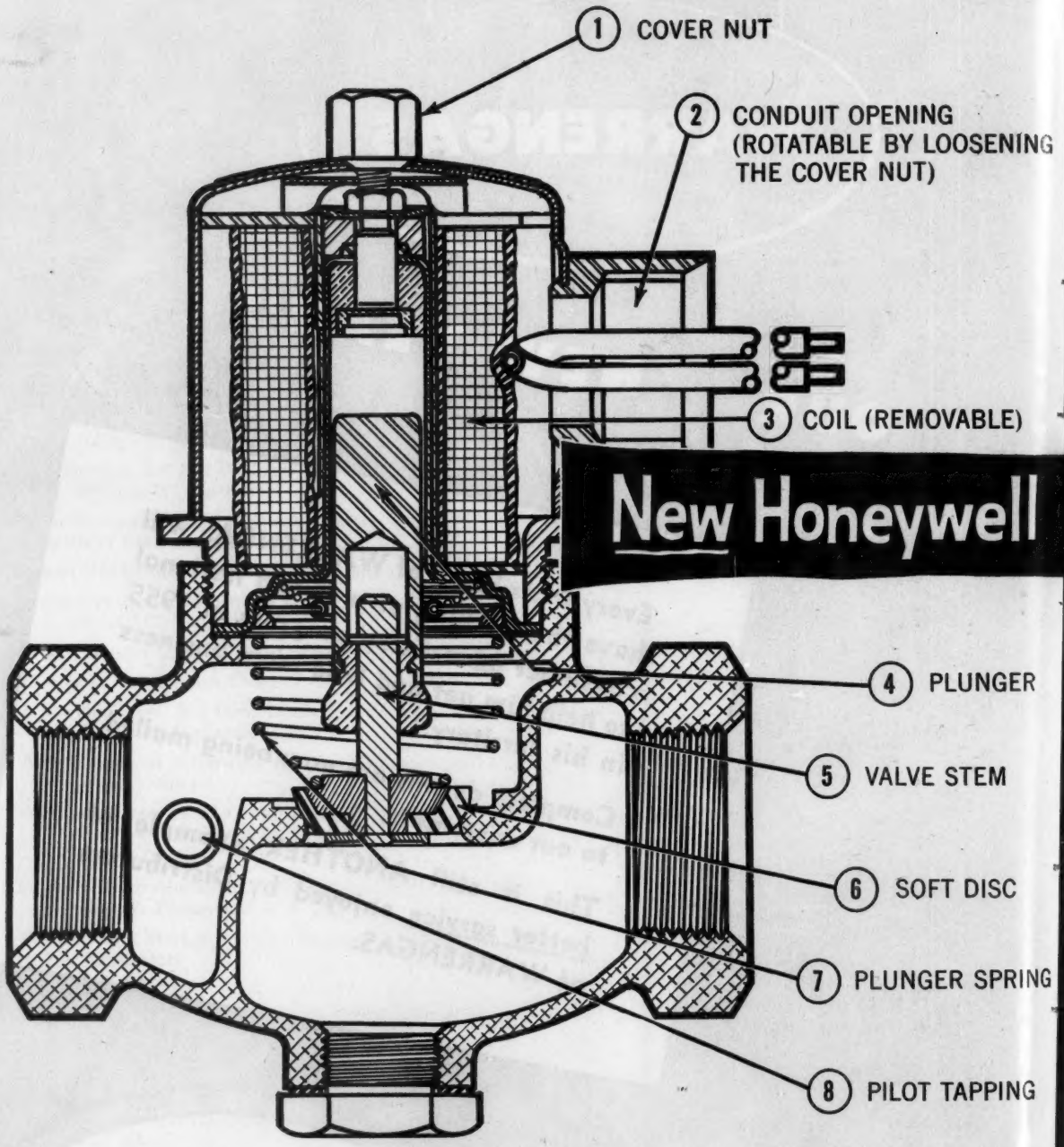
WARRENGAS
A LIQUEFIED PETROLEUM® GAS OF HIGHEST QUALITY

WARREN PETROLEUM CORPORATION • Tulsa, Oklahoma



New Honeywell ga

Controls for your every need and purpose

l gas valve with new soft-disc design!

New Honeywell VA835 Solenoid Valve features

• **New Soft-Disc Construction**—provides tight shut-off. Suitable for *all* fuel gases! Pressure rating 8 ozs.

• **New Spring-Loaded Plunger**—Large conical spring presses valve disc against seat. Gives more positive closing.

• **New Replaceable Coil**—a doughnut-type coil slips over the plunger tube. It can be replaced at minimum expense!

• **New "Rotatable" Head**—you simply loosen the cover nut to re-position the conduit spud to the desired alignment in making the electrical connections.

• **New Ruggedness**—seamless gas-tight construction of plunger tube and cover bears directly on body union nut. It will more effectively resist abuse in piping to manifold.

• **New Capacities**—the new VA835 gives you increased capacities for larger jobs.

This new Honeywell VA835 replaces the famous Honeywell V835, and bears the same high standards of quality construction. Available with or without manual opener.

For complete information, call your local Honeywell office. Or . . . write to Honeywell, Dept. BN-1-13, Minneapolis 8, Minnesota.

MINNEAPOLIS **Honeywell**

112 OFFICES ACROSS THE NATION

H HONEYWELL

First in Controls

ASTORIA GAS & ELECTRIC (PYROFAX) ASTORIA, ILL.	MODERN GAS & APPLIANCE MAYBEE, MICH.	SERVAGAS KENT, OHIO
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W. C. COPELAND, JR. (PYROFAX) MADISON, FLA.		
JAX BOTTLED GAS (PYROFAX) JACKSONVILLE, FLORIDA		
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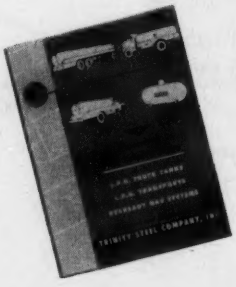
There's A

That is why . . . today, hundreds of satisfied customers know that it is just plain good business to buy TRINITY truck tanks.

Whatever you want, ruggedness, economy, beautiful design — you know that its built right into *every* TRINITY tank. Dependable performance and skilled manufacture are also part of our guarantee to you. It has always been

Write today for:

"THE TRINITY STORY"



A beautiful 12-page catalog covering all the items in the Trinity Line. Complete information and price list will be sent you promptly.

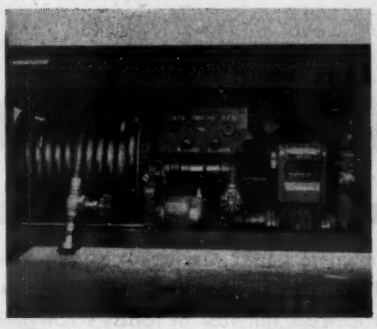
TRINITY STEEL COMPANY • 3301

Reason Why

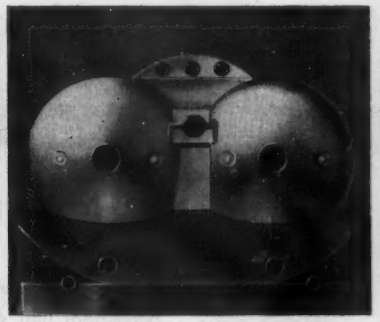
TRINITY's policy to give you a tank that does your job better — cuts your operating costs, and boosts your profits.

More and more, TRINITY's Model 106 is becoming the fastest selling truck tank in the LP Gas business — more and more, dealers all over the country are asking TRINITY to solve their truck tank problems. These names are just a few.

— And Don't Forget — **EVEREADY GAS SYSTEMS:** 150 gal. to 1,000 gal. capacities. Large, easy to read gallonage gauge, Tailored Dome. Sturdy, foolproof fitting manifold tanks constructed under all existing codes to your state requirements. Prices reasonable, immediate deliveries.



TYPICAL OPTIONAL PLUMBING PLAN. Full control panel in reel and meter compartment, for operating remote control Okadee valves, P.T.O. clutch and throttle.



NEATLY DESIGNED SECTIONAL SKIRTING. Complete ICC Stop and Directional lights, recessed thermometer, Rotary and Pressure Gauges.

TWO LARGE "SPACE-SAVER" COMPARTMENTS, for mounting Fuel Tank, Neptune #433 Printometer; Hannay Reel, 75'-1" Liquid Hose and 75'-½" Vapor Hose. Chrome hardware.

At last, careful, experienced engineering skill has brought you a truck tank guaranteed to make your job easier for you. This twin barrel Model #106 is "The Perfect Unit."

Like all Trinity Units, the #106 is engineered to fit your chassis, if you wish. Entire truck unit can be painted two-toned. Tanks are painted two coats of Du Pont DuLux white over red oxide, and lettered to your specifications.

No matter how you look at it — for performance, beauty, and dependability — Trinity's #106 Twin barrel is the finest you can buy.

TWIN BARREL MODEL #106 1400 to 1700 WG capacity. 41" dia. Constructed under ASME U-69 or W250 ICC MC-330 Codes. Prompt delivery.

TRINITY STEEL COMPANY INC.
EVEREADY
GAS SYSTEMS

SOUTH LAMAR STREET • DALLAS, TEXAS • HUnter 8321

Another Achievement of
AMERICAN-STANDARD
Research

SUNBEAM

MODEL GLA GAS LO-BOY ASSEMBLED

QUALITY-BUILT, LOW COST

Winter air conditioning unit for all size homes

IMMEDIATE DELIVERY—ALL 8 SIZES

Just look for a moment under the jacket of the all-new Sunbeam Model GLA . . . a compact, gas-fired, all-steel basement unit priced to sell fast in today's competitive market. Look at the simple, space-saving design . . . the fine quality of all components. Based on American-Standard Research, and made possible only by Sunbeam's large-scale production, the GLA is a winter air conditioner that you will be proud to sell . . . and one that will build steady profits for you. Immediate delivery in all 8 sizes. Contact your Sunbeam distributor today for complete details. Sunbeam Air Conditioner Division, Elyria, Ohio.

* * *

See the New GLA on display at the January shows—National Home Builders Show, Chicago. ASHVE Heating and Ventilating Show, Philadelphia

Your profit-building package

Saves you time and money because it is Completely Assembled, Wired and Installation Tested at the factory. This results in faster installation and minimizes service call-backs. The 5 smaller sizes—75,000 through 175,000 Btu input—are shipped in a single carton. The 3 larger sizes—200,000, 250,000, and 300,000 Btu input—are factory assembled and wired but shipped with blower section in a second carton for easier handling on customer's premises.

- Heavy-gauge steel jacket; Forge Red finish.
- Whisper quiet blower with self-aligning bearings—constant duty motor with adjustable pulley.
- Jet action heating element burns all gases—natural, mixed, LP or LP-air.
- Non-corrosive, high-temperature ribbon-type burners.
- Equipped with quiet, dependable Detroit Controls

FACTORY ASSEMBLED AND COMPLETELY WIRED

MODEL GLA

Heating elements tested under air pressure.

Automatic pilot valves and quiet-action gas valves are tested in operation at factory.

Gas manifolds tested under air pressure.

"INSTALLATION TESTED"

Every GLA unit is subjected to the industry's most rigid test before leaving the factory, just as if it were finally installed. Procedure includes actual gas firing and operation of the blower and controls.

Approved by A.G.A.

SUNBEAM

AIR CONDITIONER DIVISION

American Radiator & Standard Sanitary Corporation

Serving home and industry: AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS & WALL TILE • DETROIT CONTROLS • KEWANEE BOILERS • ROSS EXCHANGERS • SUNBEAM AIR CONDITIONERS

"The Time Saver"

Finished with one primer coat and two coats of high gloss white auto enamel.

Another Masterpiece IN TANK CONSTRUCTION

We Provide Easy—Convenient Financing

It's no wonder the 1955 model Master tank is called *The Time Saver*. It was designed by Master engineers with the idea of saving time and making more money for the operator. Available in capacities from 1,400 to 1,800 water gallons and will fit all standard truck frames. Investigate now and you will be convinced *The Time Saver* is the truck tank for profitable operation. Shipped complete with truck of your choice. We're making 'em. We're shipping 'em. They are everything we claim!

PRODUCTION MADE
PRODUCTION PRICED

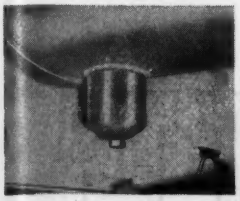
MASTER
TANK & WELDING

P. O. Box 5146 • Dallas, Texas • Prospect

The Latest

Master Tank Truck

ALL WORKING PARTS and FITTINGS MOUNTED ON REAR OF TANK

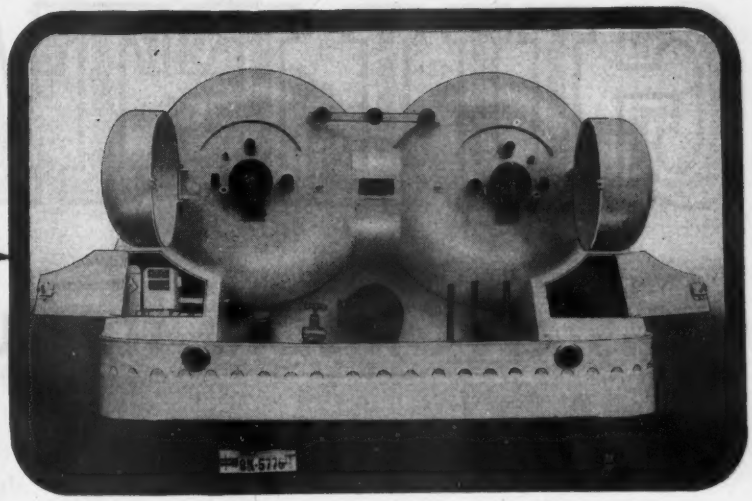


SUMP
Suction line picks up from within 4" sump on bottom of the front of each tank. Tank can be pumped dry. Sump traps sediment which is drained off periodically.

METER BOX IS STANDARD EQUIPMENT
Each box is 16" high, 26" deep and 18" wide and comes as part of The Time Saver at no extra cost. Large enough for meters or can be used as tool boxes.

PUMP IS BETWEEN TANKS
Pump operates from a tubular driveshaft connected to the power takeoff of the truck. This driveshaft is as strong as the one on the truck and will not whip or flex.

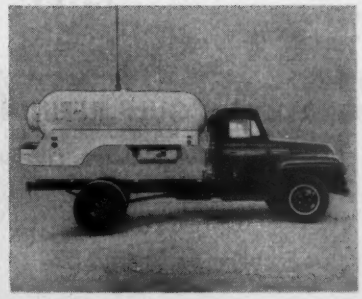
FITTINGS WITHIN EASY REACH
No running from one side of the truck to the other to turn on valves and start the pump. Operator stands at the back of the truck and everything is within easy reach, including clutch, power take-off and accelerator.



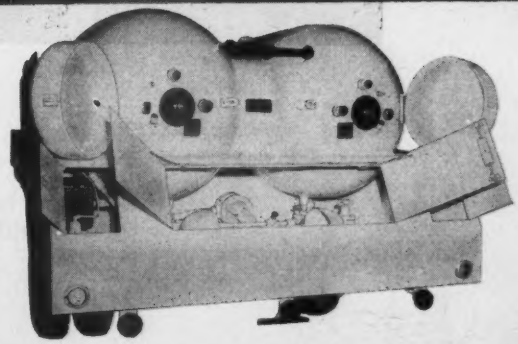
For the first time, all working parts of a truck tank are mounted as a single unit on the platform at the rear of the tank. In addition to the time saving features in quicker delivery and changing trucks, there is less maintenance due to lack of vibration. Around the pump connections, rigid pipe is used for the first time because there there is no flex or strain. All T's and L's are welded. It is not necessary to change the exhaust system with the pump in back, for there are no connections near the muffler.

ONLY 60 MINUTES TO CHANGE TO ANOTHER TRUCK

All Master tanks will outlast many trucks. When it comes time to change trucks, merely disconnect power takeoff and unscrew the mounting bolts. Entire unit is ready to be moved.



FULLY ENCLOSED REAR COMPARTMENT

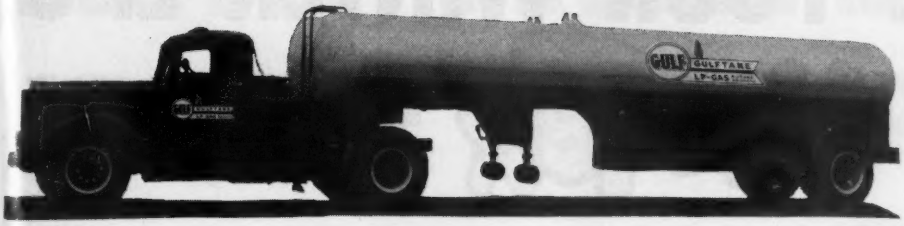


Now GULFTANE

is available through GULF's

GULF OIL CORPORATION • GULF REFINING COMPANY

1822 Gulf Building, Pittsburgh 30, Pa.



LP-GAS

widespread marketing facilities

Gulftane — the same clean-burning, high quality LP-gas Gulf has been producing for many years—is now available direct to you.

Gulftane is produced in the most modern plants under controlled conditions. Its specifications meet the highest standards adopted by the LP-Gas industry.

Gulftane plants are strategically located in Gulf's marketing territory, and a fleet of tank cars and trucks is ready to handle your demands quickly and efficiently.

Also ready to serve you is Gulf's experienced engineering and marketing personnel through Gulf's extensive marketing facilities.

Get all the facts concerning this new Gulftane service—contact your nearest Gulf Division Sales Office (see addresses below).

MEMBER
national LP-Gas Promotional program

GULF

131 Ponce De Leon Avenue, N.E.
ATLANTA, GEORGIA

31 St. James Avenue
BOSTON 17, MASS.

Gulf Building
HOUSTON 2, TEXAS

127 Elk Place
NEW ORLEANS 12, LA.

17 Battery Place
NEW YORK 4, N. Y.

1515 Locust Street
PHILADELPHIA 2, PA.

National Bank Building
TOLEDO 1, OHIO

SOLVE YOUR WINTER LPG WITH Nor-Tex QUALITY

This is your opportunity to buy, at greater savings, the LPG Delivery Units you will be needing this winter. Nor-Tex "Package Units" represent the finest materials and the most skilled production money can buy. Three popular models: "The Standard Twin" — "The Payload Special" — "The DeLuxe Twin." Satisfied users throughout Canada, the United States and Mexico will readily tell you: "For low operating cost, for high earning ability, for convenience, for roadability and for price, Nor-Tex 'Package Units' are the best investment you can make."

PAYLOAD SPECIAL

Get immediate delivery on this Internationally popular 1800 WG Nor-Tex twin "Package Unit" and save money, tool It has everything you needl Viking mechanical seal pump, 50' filler hose, 50-gallon recessed fuel tank, ICC lights, P.T.O., splines jack shaft and it is completely piped and read to use.

A Complete "Package Unit" *Including Taxes* F.O.B. Denton, Texas **$2,099.20** *Mounted On Your Chassis*

Immediate Delivery

WE ARE AUTHORIZED TRUCK DISTRIBUTORS
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Nor-Tex PRODUCTS COMPANY

National Sales Agents for

Balance Your Load the Nor-Tex Way + Finance the Balance

STANDARD TWIN

Business small? Just getting started? Wherever you are located, the Nor-Tex Standard Twin is your best buy! This streamlined 1400 WG twin unit is completely piped and ready to use with Viking mechanical seal pump, 50' filler hose, 50-gallon recessed fuel tank, ICC lights, P.T.O. and splines jack shaft

A Complete "Package Unit" *Including Taxes* F.O.B. Denton, Texas **$1,793.80** *Mounted On Your Chassis*

NORTH TEXAS

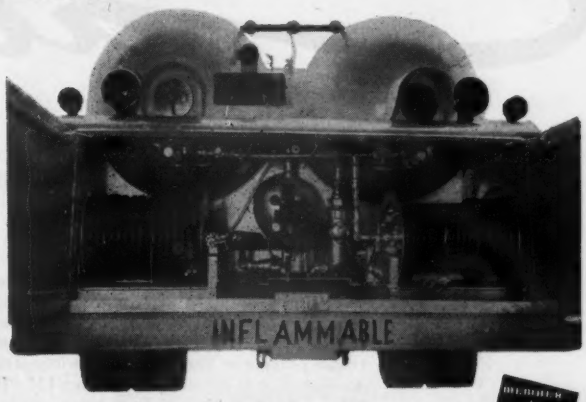
DELIVERY PROBLEMS NOW AT THESE SPECIAL PRICES

Immediate Delivery

PIPE IT YOURSELF

At this low price North Texas Tank will mount a 1400 WG twin Standard Unit, complete with recessed motor fuel tank, on the chassis of your truck. See back page of folder for additional information.

$1,143.50



DELUXE TWIN

Here is the choice of the fleet owner! It is the finest looking unit on the road with plenty of big, roomy cabinet space. It is a complete 1400 WG unit with Viking mechanical seal pump, 50' filler hose, 50-gallon recessed fuel tank, ICC lights, P.T.O., splines jack shaft and it is all piped and ready to use.

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LPGA

For your safety and convenience all necessary loading and unloading valves are located in the back compartment.

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all-new, colorful, brilliantly designed

All-new from top to bottom. the fabulous new Caloric gas ranges are the most exciting, desirable and saleable in more than half a century of Caloric progress. And they offer dealers the greatest opportunity for substantial profits.

These sensational ranges represent a revolutionary new concept . . . maximum cooking capacity in minimum over-all dimensions.

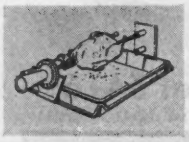
Here's new flexibility. In just three basic sizes 24″, 36″, and 40″, the new Caloric ranges provide an almost infinite variety of combinations. The housewife can choose an oven to suit her needs . . . either 13″ "Pastry" oven, 16″ full-size oven, or 20″ "Harvest" oven. She can have two ovens in one range or a high-level broiler with rotisserie. She can have automatic controls, oven indicator light, "matchless" performance, four burners or six, divided or cluster top-burner arrangement.

Here's the new look in ranges. With new backguard, new angled control panel, freshly styled door panels, the new Caloric ranges have a distinctive and unusual profile.

The tasteful use of color . . . the brilliant years-ahead styling of Peter Müller-Munk Associates . . . the great new features . . . the sturdy long-lived construction . . . all these add up to one thing: You'll be years ahead with Caloric!

For complete information. contact your Caloric representative or write direct to Caloric Appliance Corporation, Topton, Pa.

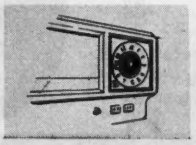
with these revolutionary new features



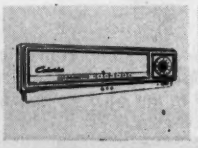
ROTO-RAY BARBEQUER . . . This new rotisserie gives barbecue broiling in your own home. No expensive extra equipment. Motor-driven spit turns meat slowly and smoothly

ULTRA-RAY HI-BROILER . . . The high-level broiler that eliminates unnecessary stooping It's the ultimate in quick, radiant, infra-red cooking.

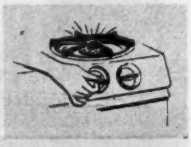
TWO OVENS . . . A modern Caloric kitchen convenience, the two-oven range is a real "must" for many housewives.



INDIRECT BACK-GUARD COLORED LIGHTING . . . Dramatic color effects to match your kitchen decorating scheme. Lighting available in frosty blue, minty green, rosy pink. cool white.



IN-A-LINE TIMER . . . Vertical marker shows at a glance how much cooking time remains. Can be set for a minute or an hour.



ANGLED CONTROL PANEL . . . Easier to see, easier to use. And the modern control knobs are recessed, can't be bumped or jogged.

fabulous

PALM SPRINGS

New 40″ range. Shown here with automatic oven timer, extra-large "Harvest" oven, and Roto-Ray Barbequer. Model CPW A4AX.

SEA ISLE

New 24″ range. Shown here with automatic oven timer, 20″ "Harvest" oven and full-size broiler. Model CP A2AX.

WHITE SANDS

New 36″ range. Shown here with automatic oven timer. Two ovens: full-size oven and "Pastry" oven. Model CPD A3AX.

you'll be years ahead with the great new Caloric Ranges

Guaranteed by Good Housekeeping

CALORIC APPLIANCE CORPORATION, TOPTON, PA.

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I would like information on your new 1955 master line o fine ranges.
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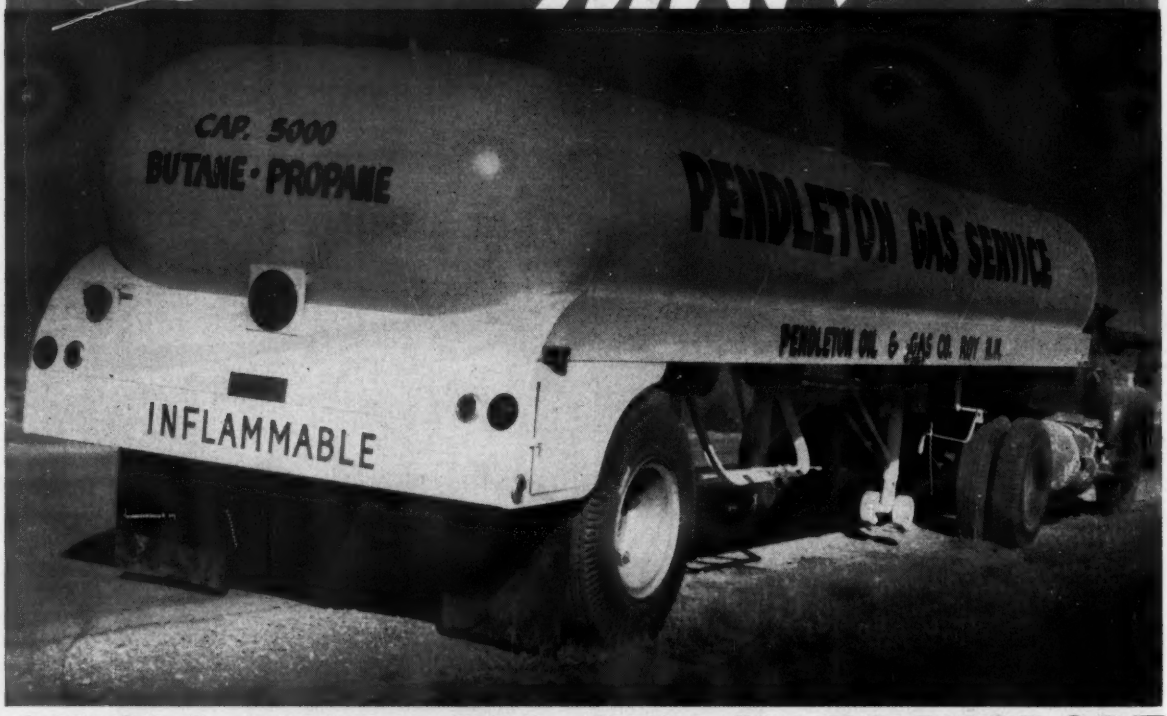
A NEW LMC

MONEY MAKER



SINGLE AXLE 5000 GALLON TRANSPORT

This LMC transport tank makes possible a new high in payloads, with only a single axle trailer and tractor. The two-ton class truck will pull this unit nicely. Empty trailer weight is 14,790 lbs.; total payload is 19,100 lbs. (4500 gallons of propane), suggested truck weight is 6,000 lbs.; a total of 39,890 lbs. This transport tank, like all LMC units, is designed for Low Mileage Cost.

Buy on the LMC budget plan!

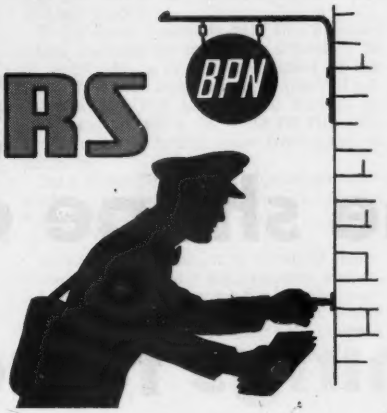
WRITE FOR ADDITIONAL INFORMATION, PRICES AND PAYLOADS

LUBBOCK MACHINE & SUPPLY CO

P. O. DRAWER 1589 POrter 2-5261 LUBBOCK, TEXAS

LMC
LOW MILEAGE COST

LETTERS



Drilling Rig

Alberta

As manufacturers and erectors of LPG equipment, we have been approached to submit details of a typical propane and butane drilling rig installation in conjunction with Progas Ltd., manufacturers of natural gasoline and L. P. gas.

Since this type of drilling rig fuel system is comparatively new in Canada, we would like to obtain from you samples of most commonly used installation layouts as used in some parts of United States.

The storage tanks will be of the 3000-gal. range, one containing propane, the other butane. The drawworks engines will be of the Superior type such as are most frequently used on drilling rigs.

Trusting that you have some sketches available on this subject, and if possible tables of vapor pressures of various mixtures of propane-butane, iso-butane and normal butane at various temperatures, we shall be very happy to receive same at your earliest convenience.

M.P.

The carburetion equipment on the drilling rigs can be supplied by any of the major manufacturers advertising in **Butane-Propane News.**

In ordering the equipment from the manufacturer, you should include complete data on the engine, giving the manufacturer's name, engine model number, serial number if available, displacement, speed, bore and stroke.

We suggest that the storage tanks should be kept at least 50 ft from the rig.

We publish two books which might be of interest to you in connection with projects of this kind. They are entiled **Butane-Propane Power Manual** and **Handbook Butane-Propane Gases.** The tables which you mention are included in the latter book.

We are wondering about the use of two tanks, one containing butane and the other propane. It would simplify the operation of the engines and eliminate a good deal of carburetor adjustment if you could use one fuel or the other. Butane will give more power and if it is available it would be our preference. We have encountered some very interesting and practical two-tank installations in the Rocky mountain states in which the equipment was operated on butane throughout the year. A small tank alongside with its vapor space connected to the vapor space of the butane tank supplies pressure from propane in the smaller tank to give adequate working pressure for liquid withdrawal of the butane during any weather in which the drilling crew would be working.

Butane, as you know, has a boiling point of 32° F, while propane supplies adequate working pressure down to about 20° below zero.—Ed.

•

Bulk Plant or Not?

Indiana

At present we are very small in the propane gas business; however, we have an opportunity to buy 400 customers from a man who wants to sell out. His price is $15 per customer besides the installation. We thought that would give us a start toward building a gas business.

We would in time like to put in a bulk storage tank and facilities. What would be the savings per gallon of gas in the tank car at our station compared to the 12 cents a gallon we now have to pay?

R.D.P.

We have only very general information about the price of fuel in your area f.o.b. your siding in tank cars. It is suggested that you approach some of the major suppliers of L. P. gas which serve your area and learn what the contract terms will be for a business such as you will have. There are many wholesale and refinery distributors of L. P. gas which serve dealers throughout the state of Indiana. Check the advertisers in **Butane-Propane News** and our **Butane-Propane Catalog.** A majority of them serve Indiana.

The savings per gallon of fuel purchased must be balanced against the cost, depreciation, maintenance, interest on investment, insurance, etc., to determine how many gallons of fuel per year must be moved to make the bulk storage pay. It will require a good turnover of fuel because good bulk storage plants require a fairly large investment.

Many articles have been published over the past few years in **Butane-Propane News** regarding bulk storage plants; size, arrangement and recommended good practice which should help you to determine the minimum cost of a bulk storage plant. It is a matter of financial return on an investment and will depend strictly on volume of sales and price advantage.—Ed.

•

Car Wash Machine

Florida

We are connecting a car wash machine, "Kelite KCW 17," 175 gal. per hour output and rated at 650,000 Btu input. It is to be used to maintain a water temperature of 120° F and also as a steam cleaner on occasion. The star-shaped manifold has 12 burners, the orifice size for each spud is approximately No. 67. According to our handbook chart this would only give us 88,908 Btu output, hardly enough gas to burn, let alone develop steam. We have drilled the spuds out to a No. 53, or 307,428 Btu output. Since there is no air adjustment on the burners we hesitate to drill the orifice any more; also, we are presently getting some smoking which indicates improper air mixture for the amount of gas.

We are using ten 100-lb cylinders for supply with a high pressure regulator set at 12 lb, feeding an 80-ft run of ¾-in. galvanized pipe to a Fisher 932 rated at 330 cu ft per hour and set at 11 in. wc, then to a Sprague meter 1A, rated at 175 cu ft.

The gas is commercial propane at 2500 Btu per cu ft. When in use, our high pressure regulator makes a noise as if it were drawing off too much gas, yet the pipe, pigtails and cylinders do not appear even cold which would indicate a freeze-up.

Can you tell us what can be done to increase the output sufficiently to give steam occasionally and maintain hot water at 120° F without smoking and still keep a high efficiency?

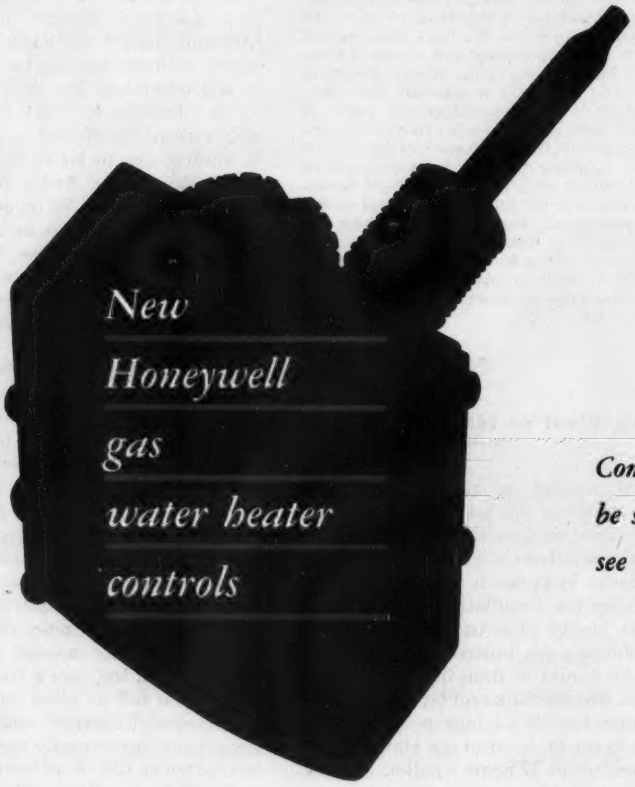
What would we have to sell propane for to compete with fuel oil No. 2 grade at .144 per gallon?

L.A.M.

We have gone over your problem with some of the people at the Kelite Co. in Los Angeles who manufacture or assemble the heating equipment to which you refer in your letter.

There was apparently some mistake made in drilling the burner orifice before it left their plant and improper size orifices were supplied. They are forwarding new orifices of proper size and also four additional burners to be installed on the manifold. The replacement orifices, and the orifices in the four new burners will be No. 49 or No. 50 drill size. They state that these orifices will provide satisfactory

The shape of finer things to come...



Coming soon—
be sure and
see them!

MINNEAPOLIS
Honeywell

112 OFFICES ACROSS THE NATION

Gas Water Heater Controls

flame conditions if the draft is adequate. They use No. 29 drill size orifices in most natural gas fired units of similar size. The No. 29 size for natural gas is comparable to the No. 44 or 45 drill size for propane when heating value, specific gravity and gas pressure at the burners is considered. They state that combustion is complete when the orifice sizes mentioned above are used, as evidenced by gas analyses which they have taken.

They also point out that the correct flame may not be entirely blue or clear as on a domestic range burner but may be quite orange in color, especially in the upper portion. This does not mean that combustion is incomplete. The flame should be erect and appear alive. It should not be reddish in color, smoky or wavey. If the flames tend to smoke or waver, appear lazy and mushroom out at the top, then there is inadequate draft to remove the products of combustion and allow adequate fresh air to enter the system.

The heater may be located where the circulation of air is such that a downdraft is developed, or some other condition occurs to prevent the proper removal of the products of combustion and admittance of air to the combustion chamber. A few feet of stack on the heater to clear any surrounding walls or other barriers will generally clear the trouble.

After the burner condition is rectified we believe you may encounter other troubles. This is based on your description of the equipment supplying the fuel.

You mention the noise made by the primary or high pressure regulator. You did not advise the type or size of the regulator which you are using. It appears you may be using one that is too small. The Fisher type 64, or one of comparable size, will be proper, and it is suggested that it be set to deliver gas at 15 or 20 lb to the No. 932 low pressure regulator. To obtain 650,000 Btu per hour requires about 260 cu ft of gas. The ¾-in. line is satisfactory for the 80-ft run of high pressure piping, providing there are not too many turns, restrictive fittings, or dirt in the line. The low pressure line should be larger. Because we do not know the distances, number of elbows and other fittings in the low pressure line, we cannot advise you on this. It certainly should not be any less than the 1¼-in. connection on the water heater burner. See page 316 of 1951 Edition of "Handbook Butane-Propane Gases" for a table with which to size the low pressure lines.

The Sprague meter is undersized for the flow of gas which will be demanded by the heater when on full fire. Meters are usually designed to pass their rated capacity with not more than ½-in. wc pressure drop. When the rated capacity is exceeded, the pressure drop starts to increase rapidly and the additional pressure loss will reduce the burner output. A larger meter or two of the 175 cu ft capacity units installed in parallel should be used.

The Kelite people state that the heaters will operate at 75 to 78% efficiency. Oil in this type of heater will be much less efficient; 60% is probably liberal, especially after a few weeks of operation. Number 2 grade fuel oil will contain about 138,000 Btu per gallon and propane about 92,000 Btu per gallon.

If the water heater is only 60% efficient when burning oil then only 138,000 × .60 = 82,800 Btu will be transmitted to the water from the combustion of 1 gal. of oil.

Since it is 75% efficient (or better) on L. P. gas, 92,000 × .75 = 69,000 Btu will be transmitted to the water from 1 gal. of propane.

On a direct heat delivered to water comparison, propane would have to sell for $.144 × 69,000 = $.12 per gallon.
82,000

However, L. P. gas on its merits of cleanliness, lack of burner maintenance service, no cost for electric power for burner operation, and longer life for the water heater should demand better than $.12 and still sell over oil.—Ed.

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Safe Distances

Illinois

We are operating in a village of 1000 population, with our store and dock in the business district. We carry about 80 100-lb cylinders of propane gas on our dock at peak times.

As far as we can find out, there is no ordinance in the village covering the use of gas or storage. Recently we have been wondering if we might be in trouble in case of fire in any buildings close to our dock.

I am enclosing a diagram of our location in reference to adjacent buildings. It is 6 ft from dock to garage; 16 ft to alleys; 100 ft from dock to any residence.

What is your opinion?

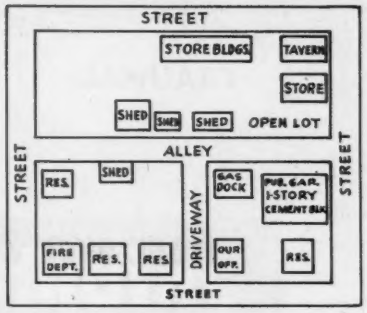
V.L.M.

We are not fully familiar with the code covering L. P. gas installations in Illinois. We doubt if a town of 1000 population would have its own code, but the state (or county code if there is one) would be applicable.

Our records indicate that the basic law is covered by Section 9, Chapter 127½, Illinois statutes, and that the department of public safety is the regulatory body. We believe you can obtain a copy of the code by writing to the Illinois department of public safety at the state capitol in Springfield. Also the Illinois state LPGA, care G. W. Chapman, secretary-treasurer, Chapman Gas Co., Chester, Ill., may be able to help you obtain a copy of the code or advise you if your dock location meets the state code.

NBFU Pamphlet 58 under Division V, Section 5.2, "Storage for Resale," does not specify any set distance from other buildings except in paragraph 5.2(d), which reads as follows: "Where the storage exceeds 10,000 lb of gas at one storage location, such storage shall be located at least 25 ft from important buildings, or regularly busy main thoroughfares." Since you carry around 80 100-lb cylinders or 8000 lb, the 25-ft requirement is not applicable.

Section 5.2 does point out that: "Such storage of containers shall not be adjacent to a school, church, hospital, athletic field or other points of public gathering." It also states that "containers may be stored in the open provided they are stored within a suitable enclosure to prevent tampering. The valves and safety devices shall be protected against accumulations of ice and snow. Protective caps shall be deemed adequate."



It is quite possible that a fire in the garage could do serious damage to your dock and the cylinders on it. This is especially true if the garage wall should collapse and fall outward during a fire since it would surely strike the dock if it is only 6 ft away.

We suggest you carefully check your local or state code, and if at all possible either find a better location for your dock or reduce the number of cylinders you keep on the dock.—Ed.

•

Raising Compression

Delaware

We wrote you once about high compressioning a GMC No. 248 motor. We are going to use this on a 2-ton tank truck. You advised us to get in touch with Jahns Quality pistons, a company that specializes in building up the compressions of engines. This company told us that GMC motors can be raised to as high as 9:1 or even 10:1.

We are planning, on that information, to get pistons to raise the compression from the present 6.75:1 to 9:1. However we would like to get some more definite reassurance that this type motor will stand the added compression. Do you think it will make for harder starting in cold weather? We are planning to block off the heat manifold and use an exclusive propane carburetor.

M.L.

We have a number of apparently reliable reports that the GMC 248 engine gives very good satisfaction with 9:1 compression, if commercial propane meeting the NGAA specifications is used exclusively. Where butane-propane mixture will be used, it is better to keep the ratio down around 8.25:1.

If the ignition system of the engine is not up to standard, it will be a little harder to start an engine on L. P. gas than on gasoline. Compression ratio does not seem to have much to do with this. It comes from the fact that the gas requires a hotter spark to ignite than does gasoline. Both the battery and the coil must be good, and there must be no unnecessary resistance in the ignition circuit.—Ed.

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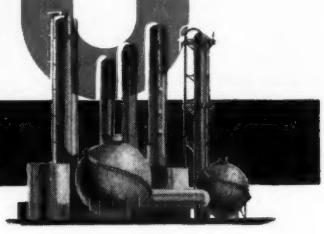
from over 30 supply points . . .

30

Tuloma LP-Gas



DEPENDABLE SUPPLY is assured contract customers of TULOMA LP-GAS. From over 30 sources of supply, Tuloma meets their requirements the year 'round, with top-quality products produced under rigid specifications.

MODERN TRANSPORTATION facilities, continually being expanded, add ample insurance to distributors and dealers that TULOMA LP-GAS will arrive "on time." Strategically located supply points provide flexibility to meet customer demands.

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BPN Beyond the Mains

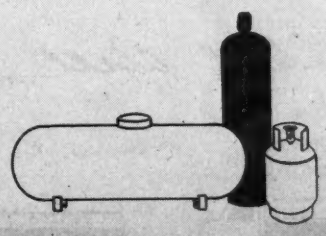
WE ARE CONSUMED WITH ADMIRATION over the manner in which the power companies of New England and the northeastern states acquitted themselves in restoring customer service after the passage of Hurricane Edna, which centered on New England on September 11, and Hurricane Hazel, which mowed a swath several states wide from the Chesapeake Bay area to New York and up into Canada on October 15.

We are equally proud of the way in which the L. P. gas dealers throughout the affected areas stepped in with public emergency services of various kinds. Theirs was a more impromptu response, springing from the human desire to help rather than from a program arranged in advance. The electric companies, on the other hand, have taken the lead in making ready for just such emergencies.

THE POWER COMPANIES HAD THEIR ORGANIZATIONS ALL SET UP and trained to meet disaster conditions. With advance warning of the approach of destructive winds, the crews were alerted and standing by. When the hurricanes struck, all hands worked practically around the clock to restore service. When it became apparent that their own crews would be inadequate, the companies suffering most severely were able to draw supplemental crews from hundreds of miles away.

Public Service Co. of New Jersey obtained 22 extra crews from Long Island and New England. The Baltimore utility received 35 crews totalling 266 men from points in New England and as far west as Ohio and Detroit. To meet emergency refrigeration requirements, all shipments of dry ice en route to adjoining states were diverted to the stricken areas.

All in all, these two disasters demonstrated devotion to duty in the finest American tradition. In each case the grim fight went on for six days and nights. The New Jersey utility company reports that service to 417,000 customers was interrupted for periods of from several hours to several days. Baltimore had 150,000 homes without current the night after the blow. The New England figures had been just as colossal.



Continued . . . ⟶

Yet with all the losses occasioned by these two storms there was little human suffering due to lack of power. All along the line the good neighbor spirit came to the rescue. The people who had gas cooking facilities and gas water heaters shared their kitchens and bathrooms with those who were not so fortunate. And in many, many cases the L. P. gasdealers set up emergency cooking and water heating facilities to take care of public institutions, disaster relief projects, and groups of families whose homes were temporarily uninhabitable.

ALL OF WHICH POINTS TO THREE INESCAPABLE CONCLUSIONS: First, gas services of both the utility and the "beyond the mains" types are not subject to the extensive interruptions that plague the electric companies during severe weather disturbances. Second, disaster planning for all densely populated areas should include ample facilities to utilize L. P. gas in the emergency care of the homeless. And third, in the interest of public welfare these two indispensable public services, gas and electricity, should not undertake to choke each other to death.

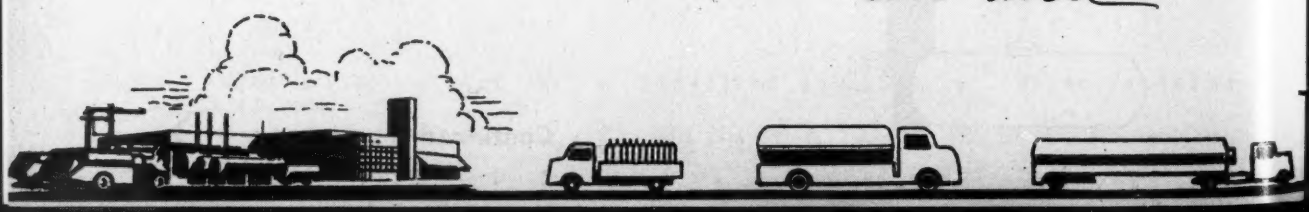
WE KNOW OF NO GROUP OF INDIVIDUALS that is more deeply dedicated to the protection of the public welfare than the organized fire fighters. There are no other public servants who take more seriously the necessity of training for the accomplishment of their purpose -- in this case the protection of life and property through the prevention and control of fires.

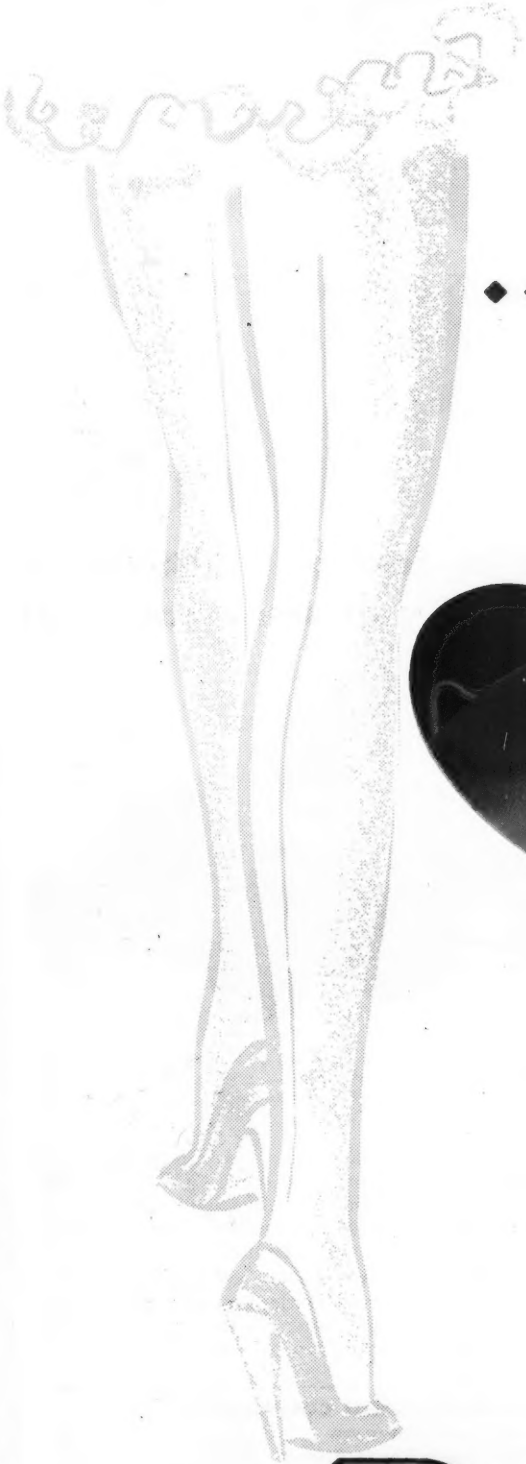
It is heartening to see the increasing number of association meetings and association-sponsored safety meetings to which the local fire authorities and fire fighters are invited. We find also an increasing number of meetings planned especially to help these willing workers learn how to handle L. P. gas fires, how to protect gas storage containers from the effects of nearby fires, and how to protect the public from conditions that might result in fires.

FROM WHERE WE SIT, THIS IS AS IT SHOULD BE. With the rash of legislation that is cropping up each year to regulate and restrict the L. P. gas industry, it becomes vital for our industry people to remove all possible excuses that might lead to restrictive control.

This essential training of fire departments is one of our first lines of defense against restrictive legislation. And taking the purely mercenary viewpoint, reducing the number and seriousness of fires is the best way yet devised to reduce sales resistance and boost volume and profits. Let's make adequate training of fire departments an industry project. This is one activity in which we can not possibly lose -- we can only gain.

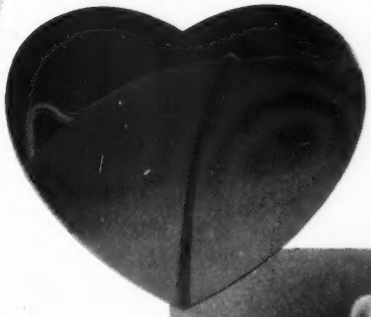
Earl Abell

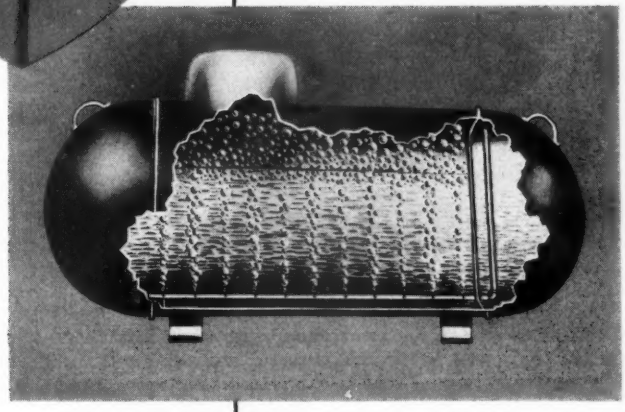




...Seams

Controlled automatic welding insures 100% perfection of all seams.
Delta's strict procedures provide and maintain consistent, uniform quality of product.





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BATON ROUGE, LA. · MACON, GA. · BEARDSTOWN, ILL.

***EXPORT OFFICE:* INTERNATIONAL TRADE MART, NEW ORLEANS, LA.**
MANUFACTURERS OF PRESSURE VESSELS AND OIL FIELD EQUIPMENT

See why the

BUTLER BIG-B

is at least . . . . . .

1000 LB. LIGHTER

. . . fills twice as fast as most single barrel LP Gas Units of same capacity!

This Butler Big-B LP Gas transport carries 27% more payload — 6,595 gallons (W.C.) — than twin-barrel units operating under the same gross.

Today's most progressive transporters know the spectacular increases in profits possible with single-barrel LP Gas transports. These X-rayed, stress-relieved units carry far more payload than double-barrel transports.

The transport that others can only copy—Many manufacturers thought X-raying and stress relieving was as far as they needed to go in boosting payload. But, Butler engineers spent hundreds of hours eliminating dead weight and designing with closest possible adherence to ASME codes. As a result, a transporter in one state now hauls an 8,058 gallon (W.C.) payload where he formerly could haul only 5,600 gallons.

Butler engineers also cut loading time in half—to help you earn revenue as many hours as possible.

Don't sacrifice a single gallon of payload! Get a personal report from your Butler representative on why you earn more with the Butler single-barrel—the transport that others can only try to copy.

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☐ Tell me how I can get *most* payload in a single-barrel transport!

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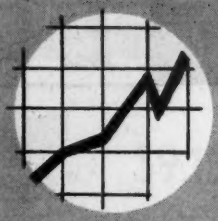
The Outlook for '55



THE MARKETS

LPG dealers are predicting another good sales year in 1955, according to Gene Masters (page 28) . . . and GAMA President T. T. Arden says that if the "appliance industry doesn't do 10% more business in '55, it won't be for lack of opportunity" (see page 35) . . . Phillips Petroleum Co. reports a 4.1% increase in LPG sales over 1953 (page 31).

PROFIT OPPORTUNITIES

Are you overlooking your two strongest potential allies in the battle of the fuels? Architects and builders can help you boost your gas profits (see page 38).

LOAD BUILDING POTENTIALS

Do you know your industrial markets? A profitable one—ceramics—is introduced by John Abram on page 50 . . . in the materials handling field the hottest topic is conversion of fork lift trucks to LPG . . . Carl Abell tells why on page 132.

MANAGEMENT POLICIES

Build sales by increasing your credit transactions . . . and do it safely with the aid of a credit bureau (see page 48) . . . some employes of the smallest companies can now have low-cost group insurance through L. P. gas associations (see page 56) . . . if you're worried about natural gas stealing your customers, look at what Glen Fansler has to say on page 42.

The Markets

LPG Dealers Say: "ANOTHER GOOD SALES YEAR IN 1955"

By Gene Masters
Director of Research, BPN

FUEL sales in 1955 are on the upgrade and appliance sales should show a substantial gain—that's the consensus of the men who are in the best position to know, the big LPG dealers and bulk plant operators. Here is what they think about 1955, and what they intend to do to insure it:

There will be another 8 to 10% increase in fuel sales over 1954. This is expected to come from more and better sales efforts in the carburetion, space heating, and agricultural markets. In anticipation of the larger fuel load dealers are adding extra storage, building up appliance and fuel-handling facilities. To insure results they are upping advertising budgets, re-training and adding salesmen, and modernizing their truck fleets.

Operators and Dealers Respond

These were the main points brought out in a national survey of the LPG industry by BUTANE-PROPANE *News* late in November. The 525 men who participated included operators of bulk plants and dealers with more than 500 customers, and their replies give cross-sectional coverage of the 48 states.

As shown by the chart on this page, forecasts for the new year follow those of last year very closely in every category except appliance sales, where a substantial growth in volume is anticipated. More dealers expect sales to be better, and fewer expect a decrease. Much of this can be attributed to an increasing emphasis on building the heating load, since in many areas dealers feel stor-

Here's What Dealers Predicted	*FOR 1954	FOR 1955
LPG Fuel Sales		
Dealers predicting increase	84.4%	82.2%
Dealers predicting no change	12.1%	14.6%
Dealers predicting decrease	3.5%	3.2%
LPG Appliance Sales		
Dealers predicting increase	32.0%	43.8%
Dealers predicting no change	43.4%	39.5%
Dealers predicting decrease	24.6%	16.7%
LPG Customers		
Dealers predicting increase	80.7%	78.7%
Dealers predicting no change	16.7%	18.1%
Dealers predicting decrease	2.6%	3.2%

*BPN, January, 1954, page 34.

age is now adequate and summer loads have been developed to the point where additional heating customers can now be served.

Regionally, there were a number of dampening factors in 1954 that slowed up dealer expectations . . . the lumber strike in the Northwest, the continued drouth in the South and Southwest, and the more-than-seasonal layoffs in a number of industries during the summer, and the hurricanes on the Atlantic Seaboard. Dealers in these areas, however, are nearly unanimous in expecting better business for 1955.

Where They Plan to Concentrate Sales Push in 1955

59.1% **LPG Carburetion**
Farm tractors, irrigation pumping engines, trucks, industrial materials-handling vehicles.

45.0% **LPG Appliances**
Space and central heating, water heating, ranges, dryers, air conditioners, refrigerators.

15.3% **Agricultural Uses**
Flame cultivation, weed burning, dehydration, tobacco curing.

13.1% **Better Sales, Advertising, and Service Programs**

3.7% **All Other**
(commercial, industrial, new products, etc.)

Totals to over 100% because many dealers plan pushes in more than one direction.

Dealers Emphasize Carburetion

Carburetion got the highest vote of any special sales activity in which the dealers plan to become more active in 1955. Nearly six out of ten replies predicted accelerated efforts in this line. Farm tractors accounted for more than half of the carburetion replies, with irrigation-pumping engines, trucks, and industrial materials-handling vehicles following in that order.

LPG dealers are also leading in establishing engine fuel filling stations to serve the truck fleets that are shifting to LPG power. Eleven percent of the companies replying reported that they are already operating engine fuel filling stations . . . 17.1% are definitely planning one or more addtional units for 1955, and 10.4% said "maybe" they would put in a unit.

Regionally, the carburetion market is continuing its eastward march. Already well established in the east central states, this important fuel load is now being pioneered in Massachusetts, New York, Pennsylvania, Maryland, Virginia, and the Carolinas, and in the next few years is expected to be truly national in scope.

Appliance Market

Over 95% of the companies replying are now handling LPG appliances, and 45% plan a major sales effort to push their appliance lines. Heating was singled out by nearly half for emphasis; more than in past years they are turning their attention to the central heating and air-conditioning prospects. Other appliances mentioned in order of frequency were water heaters, ranges, dryers, and refrigerators.

Particular emphasis on the heating load is expected in the states around the Great Lakes, reflecting the heavy increase in bulk storage facilities in that area during the past three years.

Irrigation

"Do you foresee any significant increase in the irrigation market in your area for 1955?" was another question in the 1955 survey which pointed to a regional market that is

rapidly growing beyond its former concentration in the Southwest. Plotting of the "Yes" replies disclosed an area of greatest potential in the central states from Texas to South Dakota on the west, and from Alabama to Michigan on the east. The Central and Imperial valleys in California and scattered local situations in the south Atlantic states also came in for attention.

In the heavily irrigated section around the Texas panhandle, years of drouth have set limitations on the LPG-pumping potential and dealers are looking into other agricultural, domestic, and industrial possibilities for further growth.

The biggest potential for future LPG-powered irrigation pumps is in the areas with an adequate total rainfall, but which experience dry periods frequently at the peak of the growing seasons. Needed moisture for high-value crops can be brought at the right time for maximum yields by teaming LPG-fueled pumps with the new light-weight aluminum or plastic pipe and mobile sprinkler systems. Developing this potential market will be one of our major editorial projects for 1955.

WHAT ADDITIONAL FACILITIES ARE PLANNED BY LPG DEALERS IN 1955?	LPG Dealers with Bulk Storage	Bottle Gas Dealers with Over 500 Customers
Bulk LPG Storage Tanks		
Definitely planned	25.2%	14.3%
Possible	2.5%	2.4%
More Appliance Lines		
Definitely planned	17.9%	23.8%
Possible	2.0%	2.4%
More Branch (or Dealer) Outlets		
Definitely planned	14.3%	8.3%
Possible	5.0%	2.4%
Add or Replace Trucks		
Definitely planned	47.8%	35.8%
Possible	3.6%	8.3%
Increase Sales Force		
Definitely planned	33.2%	38.2%
Possible	6.1%	4.8%
Increase Advertising		
Definitely planned	44.0%	57.2%
Possible	3.6%	4.8%
Add an LPG Engine Fuel Station		
Definitely planned	18.8%	8.3%
Possible	11.5%	4.8%
(Already equipped)	11.1%	——

Agricultural Markets

While all dealers indicated that they would devote a certain amount of their time to the agricultural market (excluding carburetion), 15% indicated that this is the market they would push above all others. This includes flame weeding, dehydration, tobacco curing, stock-tank heating, and miscellaneous burning and drying operations.

The dealers who plan sales pushes in the agricultural applications do not show regional groups, and are scattered throughout the U. S. In a number of cases these dealers are in areas expecting natural gas service and are planning to build up rural customers to take the place of the expected losses in urban areas.

Final Statistic

The theoretical "average" dealer (no LPG dealer would ever admit he was just average), is the final statistic in forecasting a continued upward trend for the industry in 1955.

As revealed by processing a number of similar surveys over a period of years, this "average" LPG dealer is a go-getter. He is not satisfied to sit and let business come to him. He likes the challenge of competition, and after years in this business is still blithely engaged in improving his plant facilities, his sales program, his service force, and expanding the list of uses for LPG.

He is the reason for this industry's record of 33 consecutive years of gains, right through the big depression and the various recessions and "temporary corrections."

He is the final proof that by the end of 1955 the LPG industry will be still bigger and more widely recognized. ■

Motor Fuel's 25% Gain Pushes LPG Sales Past 5 Billion

The Markets

By Geo. R. Benz, Paul W. Tucker and W. F. DeVoe
Phillips Petroleum Co.
Bartlesville, Okla.

1954 Fuel Sales at a Glance

Domestic & Motor Fuel

Total Sales
3,250,000,000 gal.
9.2% increase

Househeating is the largest single potential load builder. Motor fuel uses were up 25%, amounting to 12% of total sales.

Industrial & Miscellaneous

Total Sales
382,000,000 gal.
2.0% increase

New applications more than offset losses to natural gas pipeline expansions.

Gas Manufacturing or Utility

Total Sales
208,000,000 gal.
down 6.5%

Decrease caused mainly by natural gas expansion.

Chemical Manufacturing

Total Sales
977,000,000 gal.
1.0% increase

New plants compensated for weak textile, synthetic alcohol and anti-freeze compound markets.

Synthetic Rubber Components

Total Sales
317,000,000 gal.
over 18% decrease

Lack of demand for replacement tires, longer tire life and increased use of natural rubber reduced total rubber requirements.

SALES of liquefied petroleum gas passed another milestone in 1954 with a healthy increase in volume over 1953. The outlook for 1955 appears even better with general upturn of business conditions.

Sales of L. P. gas in 1954 are estimated at 5,134,000,000 gal. or 4.1% over the 1953 volume. Production, storage and transportation facilities continued to increase through 1954.

Domestic and Motor Fuel

Sales of L. P. gas for domestic and motor fuel purposes in 1954 are estimated at 3,250,000,000 gal. This represents an increase of 9.2% over comparable 1953 sales. As usual, the domestic and motor fuel market is the largest segment of total sales. This increase was gratifying as some other industries noticed a leveling-off in 1954. However, the shorter and milder winter which characterized '51-'52 and '52-'53 again prevailed and served to sharply limit larger increases in this category.

Summer sales did not hold up as well as they have in previous years due to the following reasons: the usually heavy irrigation load (fuel for the pumping units) did not start until late in the summer; and sales of L. P. gas for tractor fuel were off because of extreme drought, which sharply curtailed the use of tractors.

There has been a very substantial increase in the use of LPG for tobacco curing in the Connecticut valley, the Southeast and in Missouri. Small crop dehydration plants, as well as portable crop dehydration units, continues to be a good market.

There is a growing and widespread interest in irrigation. This interest runs the gamut from truck gardening to major farm crops and should be a good load-builder for the wide-awake dealer.

However, househeating doubtless remains as the biggest potential load-builder. House heating with LPG is moving north. House heating in the cooler regions calls for larger storage, both dealer and customer.

It is estimated that 402,000 L. P. gas ranges were shipped during the year. This is a decrease of approximately 10% from the number shipped in 1953. Sales of automatic LPG water heaters are estimated at 274,500 or about 3.7% under those of 1953. The shipment of L. P. gas-fired floor, space and wall type furnaces this year were almost 392,000. This was 28.0% of the total production of this type of gas-fired appliances. L. P. gas fueled warm air furnaces represented 8% of the total, or 50,000, this year. Three percent of the conversion burners shipped during the year were for LPG. This trend was characteristic of the entire appliance industry, both gas and electric, for the year 1954.

As pointed out last year, it is very difficult to separate the quantity of L. P. gas used as motor fuel from the over-all domestic use. However, it is conservatively estimated that the sales of LPG for motor fuel increased 25% over last year.

In other words, this use alone amounted to nearly 625 million gallons or over 12% of the total sales.

There are now over 2500 buses,

G. R. Benz

P. W. Tucker

W. F. DeVoe

200,000 tractors and untold numbers of trucks and taxicabs operating on L. P. gas. To get the total motor fuel market, one must add LPG which is used for irrigation, oil and gas well drilling, industrial tractors, lift trucks and refrigeration unit engines in cargo trucks.

Outstanding during 1954 in the L. P. gas motor fuel phase was the interest in converting industrial tractors and lift trucks and engines driving over-the-road cargo truck refrigeration units. Among the concerns that have converted lift trucks during the year are such well-known names as Lockheed Aircraft, Johns-Manville, Gerber Foods, Ford Motor Co. and many others. Probably the most important factor in the conversion of lift trucks is the elimination of exhaust fumes. With refrigeration units, the major factors are elimination of lead fouling of spark plugs and exhaust valve problems that resulted from using gasoline under constant speed, constant load conditions. The first two L. P. gas-fueled lift trucks approved by the Underwriter's Laboratories were announced in 1954.

It has been estimated that about 80% of the farm machinery in the lower Rio Grande valley of Texas will be operating on LPG by 1957.

LPG service stations are becoming a more familiar sight on the highway. ICC has reported that the L. P. gas fuel system is safer than the systems used with either of the other two major motor fuels.

Industrial and Miscellaneous

Industrial and miscellaneous sales totalled 382,000,000 gal.—up 2.0% over 1953. It is estimated that because of natural gas pipeline extensions or increased pipeline throughputs the industrial L. P. gas load itself was down slightly from last year. This seems reasonable also when one considers that one of the major industrial uses is in heat treating, which levelled of last year.

However, the increase in miscellaneous applications more than offset the industrial loss so that the net is up. More industrial stand-by plants are being added as a protection against interrupted gas service with consequent shut-down and loss of production. One of the major railroads has stated that propane is an ideal fuel for the gas turbine type locomotive since practically no maintenance is required, but it does not contemplate using LPG as a fuel under present conditions of supply, storage and cost as compared with other fuels.

The possible use of L. P. gas for "flooding" oil sands to increase the recovery from low pressure reservoirs containing viscous crude is of considerable interest.

Utility Use

Gas manufacturing demand or utility use of L. P. gas for 1954 is estimated to be about 208 million gallons or 6.5% less than 1953. This is due to the mild winter and the natural gas line extensions or increased throughputs. The latter two reasons are, however, the major ones. It should be pointed out that in some areas the demand for L. P. gas for peak shaving showed sizeable increases due to the utilities taking on new house heating loads. The use of LPG "in the mains" at new housing developments continues to be very popular.

Chemical Manufacture

Sales of L. P. gas as a raw material for the manufacture of chemicals and chemical intermediates showed only a modest increase of 1.0% over 1953, with an estimated volume of 977,000,000 gal. This increase was brought about by an upturn in demand during the final quarter.

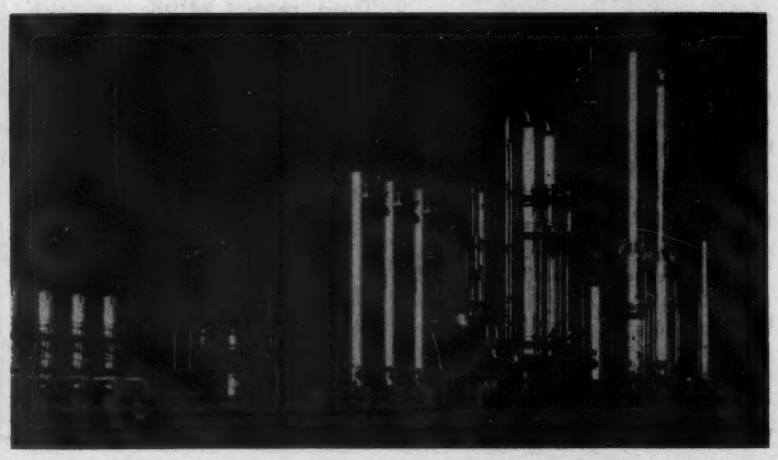
Petrochemicals, as a group, made a much greater gain during the year, but most of the gain was due to increased use of methane and ethane in the production of anhydrous ammonia and polyethylene. Petrochemicals used in the textile industry, many of which are produced from LPG, had a slow year, and the market for synthetic alcohols and various anti-freeze compounds, also large consumers of L. P. gas, was weak. These decreases were slightly more than compensated for by the requirements of new plants and full time operation of plants built in 1953.

Rubber

Demand for L. P. gas as a raw material for the manufacture of synthetic rubber components decreased by over 18% so that the total volume is estimated at 317,000,000 gal. This reduction during 1954 resulted from the substantial cutback in synthetic rubber production authorized by the Federal Facilities Corp.

Reductions in the synthetic rubber program resulted from a combination

LPG FOR PETROCHEMICALS SCORED A MODEST INCREASE



MARKETED PRODUCTION OF L. P. GAS

Year	Gallons (In thou.)	% Increase	Domestic & Motor Fuel*	% Increase	Industrial Misc. (1)	% Increase	Gas Mfg.	% Increase	Chemical Mfg.	% Increase	Rubber Components	% Increase
1922	223				Sale of liquefied petroleum gas confined primarily to bottled gas business prior to 1928							
1923	277	24.4										
1924	376	36.0										
1925	404	7.2										
1926	465	15.2										
1927	1,091	134.6										
1928	4,523	314.6	2,600		400		1,500					
1929	9,931	119.6	5,900	126.9	1,500	275.0	2,500	66.7				
1930	18,017	81.4	11,800	100.0	2,200	46.7	4,000	60.0				
1931	28,770	59.7	15,295	29.6	7,172	226.0	6,303	57.6				
1932	34,115	18.6	16,244	6.2	8,167	13.9	9,703	53.9				
1933	38,931	14.1	16,626	2.3	13,987	71.3	8,318	-14.3				
1934	56,427	44.9	17,681	6.3	32,448	132.0	6,298	-24.3				
1935	76,855	36.2	21,380	20.9	47,894	47.6	7,581	20.4				
1936	106,652	38.8	30,014	40.4	67,267	40.4	9,371	23.6				
1937	141,400	32.6	40,823	36.0	62,610	(2)	11,175	19.3	26,792			
1938	165,201	16.8	57,832	41.7	62,694	0.0	12,386	10.8	32,299	20.5		
1939	223,580	35.3	87,530	51.4	93,723	49.4	15,435	24.6	26,892	-16.7		
1940	313,456	40.2	134,018	53.1	124,482	32.8	20,285	31.4	34,671	29.0		
1941	462,852	47.7	220,722	64.7	172,669	68.6	25,255	24.5	44,206	27.5		
1942	585,440	26.5	303,857	37.6	197,179	14.2	31,366	24.2	53,038	20.0		
1943	675,233	15.3	344,962	13.6	237,396	20.4	37,519	19.6	55,356	4.4		
1944	1,060,156	(4)	445,617	29.2	254,590	7.3	45,879	22.3	151,985	175.0	162,085	
1945	1,276,766	20.4	533,262	19.7	256,577	0.8	53,849	17.4	224,291	47.5	208,787	28.8
1946	1,704,262	33.5	758,466	42.2	253,745	- 1.1	86,660	61.0	311,499	38.8	293,892	40.8
1947	2,209,797	29.7	1,150,538	51.7	274,125	8.0	169,332	95.4	414,267	33.0	201,535	-31.4
1948	2,736,801	23.8	1,473,289	28.1	275,883	0.6	237,638	40.3	524,350	26.6	225,641	11.9
1949	2,836,599	3.6	1,627,550	10.5	247,103	-10.4	239,210	0.6	544,886	3.9	177,850	-21.1
1950	3,482,567	22.8	2,022,464	24.3	355,456	(3)	251,694	5.2	624,468	14.6	228,485	28.5
1951	4,227,275	21.4	2,456,804	21.6	269,408	(3)	281,692	11.9	844,507	35.2	374,864	64.1
1952	4,477,379	5.9	2,636,736	7.4	338,959	26.0	259,697	- 7.8	870,990	3.1	370,997	- 1.1
1953	4,932,009	10.2	2,977,418	12.9	374,233	1.04	222,430	-14.4	967,427	11.1	390,501	5.3
1954	5,134,000	4.1	3,250,000	9.2	382,000	2.0	208,000	- 6.5	977,000	1.0	317,000	-18.7

*Household use plus other requirements by these customers such as irrigation pumping, tractor fuel, flame weeding, chicken brooding and similar uses. Included also is L. P. gas sold by domestic distributors but used for industrial purposes. Included also, in years following 1950, is L. P. gas sold direct by producers and marketers solely for fueling internal combustion engines.

(1) For all years prior to 1951, include L. P. gas sold for refueling internal combustion engines.

(2) Not comparable due to segregation of chemical manufacturing.

(3) Not comparable due to change in method of reporting L. P. gas sold for refueling internal combustion engines.

(4) Not comparable due to inclusion of rubber components.

REMARKS: In this table total sales for all years except 1954 were obtained from U. S. Bureau of Mines reports. Distribution for the years 1931 to 1953, inclusive, was obtained from the same source. All other volumes were estimated by the writers. The total sales volume includes all L. P. gas (propane, butane, and propane-butane mixtures) when sold as such. Until 1944 the sale of pentane when sold for any purpose other than motor fuel blending was included. Since then it has been excluded. It does not include butane when blended with heavier petroleum fractions for motor gasoline purposes. Inter-company sales transactions such as purchases of L. P. gas by one company from other companies and resold as L. P. gas have been eliminated in order to avoid duplication of sales figures.

NOTE: A direct comparison of 1954 L. P. gas sales with those of 1953 reported by the Bureau of Mines, indicates a substantial decrease for 1954. However, the Bureau of Mines changed the method of reporting L. P. gas statistics starting Jan. 1, 1954. This change in reporting procedure makes such a direct comparison of sales for these two years unrealistic. The two major changes were: (1) L. P. gases blended into gasoline were reported by gasoline plants (shipper) in 1953, but in 1954 they were reported by refineries (receivers). These reports showed more L. P. gas being blended into gasoline, leaving less for "other uses." Thus, it is necessary to consider this change when making a comparison. (2) The reports for 1954 contain more complete coverage of L. P. gas in underground storage. This is an important change, since that which is not reported as in storage is shown as sales. These are the two major changes in the procedure. However, it is felt that the revision makes the entire report more accurate and realistic, although it does not show a breakdown of demand for the various uses.

of several factors. The high production of automobiles during 1952 and 1953 has resulted in a considerably higher number of new cars on the road than has been normal in previous years. These cars, for the most part, are still running on their original rubber and this has affected adversely the demand for replacement tires. Tire mileage has increased over that attained during the past few years due to improved synthetic rubbers and better carbon blacks. The greater use of natural rubber, due to a softening of the natural rubber market, and the reduction in new car tire demands, as a result of the 1954 cutbacks in automobile production as the industry prepared for the introduction of the new models, were factors in reducing total rubber requirements also.

Safety Standards

The LPG industry continues to enjoy a good safety record in comparison with competing forms of fuel and energy. This is due to continuing attention to this matter by all phases of the industry.

A new section devoted exclusively to L. P. gas service stations has been added to the NFPA Standard No. 58 for the storage and handling of liquefied petroleum for industrial tractors, lift trucks, cargo heating and refrigeration.

NFPA Standard No. 59, which covers liquefied petroleum gas at utility gas plants, has been revised for the first time since 1949. Several major municipalities have revised their or-

dinances to permit and properly provide for the storage, transportation and utilization of L. P. gas within their corporate limits. This is definitely a move forward and should be encouraged.

Supply

The production potential of L. P. gas continues to increase despite curtailment in crude oil production and crude runs to stills at refineries. There were 20 new sources of LPG which were completed or nearly completed in 1954, with a total production potential of over 700 million gal. This included 19 natural gasoline plants and one major refinery addition.

Obviously, this increased capacity was not available for the entire year as some of the larger sources were completed near the end of the year. It is estimated that 15 new plants will be added in 1955 with a product potential of upwards of 200 million gallons. The production capacity is available to satisfy large increased demands for L. P. gas.

Regulations

Many in the L. P. gas business are wondering how the recently imposed regulation of independent natural gas producers is going to affect their business. Unless Congress acts to remove this regulation, it clearly will be detrimental.

Natural gas is just one of the energy products of the petroleum industry which, along with LPG and refined products, compete with each other. About one-third of the natural gas is produced with oil from the same wells. L. P. gas comes from natural gasoline plants which process wet gas to remove the liquids and from refineries processing crude oil.

Any regulation which adversely affects the production and marketing of any of these products, all of which share in the cost of exploration, development and production, will tend to increase the cost and decrease the supply of the others. And if the cost of LPG is increased and its supply decreased below market demand level, its competitive position with respect to coal, electricity, and other energy sources is endangered.

Natural gas was sold at distress prices for years before the tremendous increase in demand of the past few years occurred. Over the long term, competitive demand will be the only factor which will cause natural gas to adjust to proper price levels in relation to other fuels. A natural gas price artificially depressed by regulatory forces, which may well occur in many areas during the first several years under regulation, will place the L. P. gas marketer at a competitive disadvantage.

And perhaps of most importance, such control will directly or indirectly lead to regulation not only of natural gas but of the rest of the products of the petroleum business, including L. P. gas.

Storage

Storage facilities for L. P. gas are at an all-time high. Storage has been increased at all levels—producing, distributing and consuming. It is interesting to note that percentagewise, more tanks are being sold in the 500- and 1000-gal. size. However, with the continued swing to house heating, consumer storage is still too often under-sized to meet the requirements.

Transportation

It is now estimated that there are a total of 26,144 pressure tank cars in service suitable for handling L. P. gas. However, about 7500 of these cars are in other service, principally chemical. This would leave an estimated 18,644 cars in LPG service. Over 2100 tank cars were added to the L. P. gas fleet during 1954. Another sea-going barge was christened and put into service this year. This makes a total water fleet of two LPG ships, three dual cargo ships, four propane barges (two inland waterways, two sea-going) and one butane barge.

While a substantial amount of the total L. P. gas is currently moved by pipeline, new LPG pipeline projects have been announced for Mexico, United States and Canada.

Truck movement is increasing with the trend toward the use of large "blimp type" or single-barrel cargo trucks instead of the twin-barrel units because of increased payload.

Exports

Sales of L. P. gas for export are up again about 30% totalling 38.5 million gallons. New extraction facilities have been proposed for Canada, Mexico and England, but are not yet in operation. These plants may affect the export market; however, the demand is on the upswing and the foreign L. P. gas market is bright.

Outlook

The gain in L. P. gas sales for 1954 was a healthy one although not equal to the phenomenal gains of earlier years.

The househeating market offers one of the greatest potentials for large volume increases in LPG sales. The motor fuel market is expanding and achieving wider acceptance. It also offers great possibilities for increased volume. The air conditioning field offers a growing market for year around air conditioning using gaseous fuels.

In view of the increasing sharp competition in the fuel market, the LPG industry must step up its sales efforts and render the best possible service to its customers to continue to enjoy substantial gains each year. With such increased effort and the general upturn of business activity, 1955 looks promising for the L. P. gas industry. ■

LPG AS MOTOR FUEL CONTINUES TO GROW RAPIDLY

The Markets

The Outlook for 1955

"Good, getting better"

The year-end report on general business conditions and the outlook for the gas utility industry show an upward trend which will have an impact on the LPG industry.

By William W. Clark
Editorial Director

ROUNDING the corner into 1955, we find evidences on all sides of a general spirit of business optimism among LPG dealers. But, since we don't run our businesses in a vacuum, it's pertinent to look at the general business "climate" and see how the experts rate the prospects for the new year.

In a word, they're saying: "Good, getting better."

The tone of their expressions is cautious. But all signs point to the fact that we hit the bottom of the dip in the summer of 1954 and are once more on the upward road, which this time seems to have a firmer underfooting and appears to lead on a gentle rise through 1957, at least. In general, that year is being accepted as a new landmark toward which we are moving today.

+ *". . . LPG . . . is . . . progressing faster than the general economy, if for no other reason than that less than a decade ago it had so much farther to go."*

So, as our more silver-tongued savants would put it, that is the "climate" or "framework" within which the LPG industry will move ahead to new levels of prosperity. But we know that LPG—in fact, the gas industry as a whole—is, in most ways, progressing faster than the general economy, if for no other reason than that less than a decade ago it had so much farther to go.

The big brother utility industry gives us some clues. Late reports show that, while inroads continue to be made by the better-financed electrical giants in the fight for our cooking load, on most fronts we continue to push out the perimeter of our offensive line. Gas, as a whole, has had an excellent year, and the signs are up for a better 1955. As President T. T. Arden of GAMA says, "If the combined gas appliance industry doesn't do 10% more business in 1955 than in 1954, it won't be for lack of opportunity." And President F. M. Banks of the American Gas Association writes the new record levels in customers, sales of gas, and revenues reached in 1954 as ample evidence of the opportunity for further growth in 1955. "There is every reason to predict," he declares, "that during 1955 the industry will again establish new records for gas service."

The fortunes of LPG dealers are inexorably tied to the tides of business in the gas utilities, as is being recognized more forcefully every year. Fringe area operators are helping, and being helped, by the very companies that will one day take their loads away from them; and, even so, both sides are profiting there-

+ *"If the combined gas appliance industry doesn't do 10% more business in 1955 than in 1954, it won't be for lack of opportunity."*

by. Dealers in the Pacific Northwest, looking to the introduction of natural gas (which is certain to cut into some urban markets), are confident rather than fearful. As Glen Fansler of Spokane declares (see page 42), he is not only not worried—he's looking forward to the introduction of a glamorous factor that will rub off on his own operation and stimulate the continuing trend to gases of all sorts, be they natural, manufactured—or LPG.

The gas utility industry and the appliance manufacturers are also busy on basic improvements in appliances that will be on the LPG dealer's sales floors within the forseeable future. And they continue to sharpen their

The Outlook for 1955

promotional weapons, which cannot help but have an impact on the LPG markets. The utilities, along with and sometimes in league with dealers, have activated new programs for convincing builders and architects that gas appliances are the preferred equipment for new homes (see pages 38, 40). There has been a new emphasis on the glamorizing of the kitchen, with plans for new built-in appliances—including, now, refrigerators and clothes dryers—that continue to whet consumer demand.

Gas Emerges

The gas industry has grown to a point where it is now the sixth largest in the nation and has only begun to emerge from the cocoon of ultra-conservatism that has contained within it the type of salesmanship, promotional ideas, and sparkling appeal that are now becoming evident.

The LPG dealer may also look to the construction industry, which successfully weathered some shaky spots in 1954—even bucked the trend, overall. Nineteen-fifty-five should see a carrying over of the momentum of late 1954 to provide plenty of new homes for new gas appliances. We may see new records set. A more recent hypo for home equipment and furnishings business has been the mounting interest in home renovation and modernization. Here again, built-in range units are a natural; and among those families whose

+ *"There is every reason to predict that during 1955 the industry will again establish new records for gas service."*

ideas of modernization extend beyond outward appearances, an upgrading of water heater equipment and comfort heating should be part of the renovation schedule.

We mustn't overlook credit conditions either, and in recent months these have become considerably more favorable for home building and modernization. Revitalized GI and FHA plans have helped (see BPN, Nov., 1954, page 44), and will continue to help open up this market; and even though the credit situation sometimes fluctuates with considerable rapidity, its present status appears favorable for the short-term haul, at least.

Let's be specific. First, the facts and figures on the gas appliance outlook, according to the official word from President Arden.

More than 1.3 million new homes will be built in 1955, according to present indicators. More than $6.25 billion will be spent for remodeling and renovation. Within this market setting, the opportunities per home are three times as great as they were just 10 years ago: GAMA figures that there will be, in 1955, three major uses for gas in the average home where but one existed in 1954!

It's an established fact that dealers

+ *"The gas utility industry and the appliance manufacturers are busy on basic improvements in appliances that will be on the LPG dealers' sales floor within the foreseeable future."*

and distributors bought heavily in the last quarter of 1954 to bolster sagging inventories that had reflected their lack of confidence in earlier months. They are convinced the market is there. Mr. Arden also reports a swing back by many utilities toward active merchandising of appliances, which introduces another factor of strength into the market. City sales activities have their repercussions on the fringes.

What do the gas utilities think about their prospects for new customers and greater saturation? Mr. Arden cites a recent AGA survey which puts their "money where their mouths are." Early in 1954 the natural gas distribution and transmission companies told AGA they would spend almost $4 billion in the four years, 1954 through 1957, on strengthening and lengthening their systems. So far, he says, they're right on schedule. But past experience has shown that these estimates are not accurate: they invariably err on the low side! Considering that the entire gas industry has an estimated worth of "only" $14 billion, the projected increases will be impressive.

Furthermore, the utilities expect to add, through 1957, 12.3% more residential customers, with output of gas

+ *"Nineteen-fifty-five should see a carrying over of the momentum of late 1954 to provide plenty of new homes for new gas appliances."*

rising 45.2%. More customers, and more gas per customer!

Among individual appliances, gas central heating equipment sales have jumped 14% in 1954, while oil burner sales have slid 13% in a year. By the end of 1955, predicts Mr. Arden, there may well be 15 million homes heated by gas; by 1957, 17 million. Meanwhile, "incomplete returns on shipments of gas ranges, water heaters, and central heating equipment in 1954 indicated that the total . . . would top the combined total of 5,164,900 shipped in 1953."

Parenthetically, this means that LPG sales have been rocking along at a good pace, too, because, as Mr. Arden says, "rural customers already absorb nearly 25% of our output."

His estimate of the present number of LPG customers: 7.5 million.

Add 800,000 Customers

AGA President Banks, who is also president of the Southern California Gas Co., Los Angeles, verifies some of Mr. Arden's figures. He also points out that new customers are being added at the rate of 800,000 per year. By the end of 1955, 29 million meters will be taking gas. At this moment, there are 28 million customers, including 260,000 LPG customers served directly by gas utility companies. Volume sales in 1954 rose 7.6%, revenues bounced up 10.8%.

LPG dealers who are in accord with the principles that an "invasion" of natural gas is to be welcomed will be heartened by the news that 17,500 miles of new lines were built during the year. Total miles of utility pipe in the ground now stand at 463,000,

enough to circle the globe 18 times. And with availability of LPG being tied into the availability of other hydrocarbons, it's good news to know that estimated proved reserves of gas in 1954 stood at an all-time peak of 211.4 trillion cubic feet, and that geologists are confident that the underground storehouses of this country alone contain an ultimately recoverable 600 trillion cubic feet.

Appliance Sales

In terms of figures, gas appliance sales stacked up this way, according to early December estimates:

Gas ranges: 1954, 2,010,000, as against 1953's 2,183,000.

Automatic gas water heaters: 1954, 2,250,000, compared with 2,182,000 in 1953.

Central heating equipment; 1954, 921,000, compared with 800,000 in 1953.

Gas dryers: 1954, 200,000, as against 160,000 for 1953.

Aside from ranges, the records all showed gains, a rather remarkable feat in view of the pessimism and general depressed business activity of the first few months of the year.

Construction facts and figures:

F. W. Dodge Corp., prime authority in the construction industry, finds that the first 11 months of 1954 alone set a new annual record in construction contract awards. For the 37 eastern states, the Dodge reports showed a total of $17.9 billion, more than the total figure for the entire year 1953. As against the first 11 months of 1953, the year was 11% ahead. November itself surpassed all previous marks with a dollar volume of $1499 million, 8% ahead of the corresponding 1953 month.

+ *". . . even though the credit situation (for home building and modernization) sometimes fluctuates with considerable rapidity, its present status appears favorable . . ."*

Here's the nutshell tidings for the LPG dealer, as quoted from Vice Chairman Thomas S. Holden:

"Residential building showed by far the greatest gain—28% ahead of last year for the 11-month period." *And* "Current record-breaking construction volumes are no more than keeping pace with current demands for most classes of structures."

Therein lies one of the strengths of today's construction situation. Despite record-high activities, the nation does not appear to be overbuilding. It still can only barely keep up with its own demands. And within this is a kernel of truth about the gas industry as clearly shown in prognostications made by the utility executives for the next three years: not only is there a need for fuel, there is also a tremendous acceptance for gas as *the* fuel.

Let's look, briefly, a little more closely at the "big picture," seen through the eyes of Edwin B. George, an economist for Dun & Bradstreet.

+ *"F. W. Dodge Corp., prime authority in the construction industry, finds that the first 11 months of 1954 alone set a new annual record in construction contract awards."*

Mr. George's summation of the situation carries a note of cautious optimism. Obviously, the national economy—as pointed out before—cannot hold the same degree of promise as can the immediate future of the gas utility, LPG, or construction industries. He feels the economy bumped on the bottom in mid-summer and is now on the way up. And when thinking in terms of tomorrow, it's germane to ask, "What happened?"

"In the first half of 1953, we were happy as larks indulging ourselves in three excesses . . . accelerating defense expenditures, acquiring inventories, and piling up consumer debts at faster rates than could possibly be sustained. So we had a recession. . . . Probably the main initiating cause of the downswing was an untenable stock-sales ratio (which) . . . at the close of 1952 . . . left little room for further accumulation. Whereupon we accumulated furiously with no matching increase in sales. This . . . led . . . to efforts to reduce orders and output.

"Yet the *resistance* of the system as a whole to the cumulation of these changes has been terrific. *Resistance* (was) the significant feature of 1954."

+ *". . . LPG, gas, and the gas appliance industries . . . have exhibited a growth pattern that is better than the pattern of growth of the entire economy."*

Mr. George points out that there are sources of latent strength which were behind this resistance, and which are still with us. One is the "built-in flexibility" of our system, another is the cut in tax rates. But "recovery is not likely to be spectacular."

Mr. George calls private fixed domestic investment the "most dynamic force in our system." He forsees new construction highs ("in discussing 1955 prospects, residential construction still warrants top billing") and a level outlay of farm equipment expenditures. Other factors are present that detract from some of the more favorable indications, but all-in-all he forsees a steady forward movement in the overall economy.

In Summation

These prognostications seem to mesh well with reports from the industry and its allies. In summation, within the well-known framework of an economy that has survived a shakeout and started again on the sound upward trend, LPG, gas, and the gas appliance industries may expect to move along the same track, but at an accelerated pace motivated by inherent advantages they enjoy over other industries, to wit: They have exhibited a growth pattern that is better than the pattern of growth of the entire economy, and there is no reason to believe it will be otherwise, at least in the forseeable future. ■

Profit Opportunities

ARCHITECTS and BUILDERS

Dealers' Allies in the Battle of the Fuels

Architects and builders are in a position to aid the gas industry. LPG dealers who have invested time in educating these men to the advantages of gas are finding increased gas business their reward.

HAVE you been overlooking two of your strongest potential allies in the "Battle of the Fuels"?

Your local architect and builder are in a position to bring you many new gas customers, and can sell wholesale quantities of appliances for you at retail prices. Many LPG dealers are discovering that time invested in educating these men to the advantages of gas pays big dividends.

Throughout the country several utilities and gas dealers have instituted programs of instruction designed to point up to these two groups the versatility and adaptability of gas in modern structures. Some of these programs represent the collective efforts of several organizations while others have been undertaken by individual dealers. The results from these programs, in terms of increased gas business in the area, are impressive.

Influence Purchases

How are architects and builders in a position to aid the gas industry so effectively? Because of the individual roles which these groups play in influencing purchases for new construction, let's consider each separately.

The architect's job is to design and supervise construction of the building. In a sense, he acts as the owner's representative. During the initial interviews at the architectural firm's office, the owner outlines his requirements and describes his personal preferences in materials and products to be used. In some of these he has preconceived opinions, and in others he permits himself to be influenced by the architect's likes and dislikes. The decision as to "which fuel?" frequently falls in this latter category, and the advantage of having the architect partial to gas use is obvious.

Estimates of new house construction starts in the coming year lie between 1.2 and 1.5 million. Approximately 60% of these will be architect designed. In the non-residential field, survey figures show that almost 75% of all buildings are designed by architectural firms. All but five states require the services of a professional architect on all structures costing more than a prescribed minimum.

To some extent, the architect's influence is also felt in the 40% of homes built without his direct supervision. Many builders of housing developments and other speculative properties select their products and materials using architect-designed homes as guides. Products specified by the architect in the latter frequently are found in these houses.

Specifies Type

The architect does not actually purchase materials and equipment for structures he designs, but he does specify the general type which shall be used. He occasionally goes so far as to name brands. While the builder or contractor is the one who "signs on the dotted line," he does so subject to the approval of the architect, and the simplest way of assuring this approval is by following as closely as possible the specifications called out by the architect.

The architect's role does not cease after the blueprints have been turned over to the contractor. Long after the design stage has passed he continues to supervise the job, acting as the owner's advisor and representative, and usually coordinates the projects of several subcontractors.

Very few architects, however, can qualify as experts in all of these jobs which they coordinate. Most depend upon outside specialists for advice and information relating to particular

fields. This is where the LPG dealer's education program comes into the picture. By means of it he establishes himself as a consultant in the realms of space heating, water heating, and the other big uses of LPG. If this program is properly carried out, the architect learns to depend upon the dealer for competent counsel, and contacts him when questions concerning heating arise.

Type of Calls

In a recent issue of *LP-Gas Circulator,* Lukens Steel Co., Coatesville, Pa., outlines three suggested types of calls which the LPG dealer can make on his local architectural firm:

"The first of these is the missionary call. Its purpose is to gather information on what plans are underway, acquire names of staff members, get an indication of how L.P. gas rates with that firm, find out what the determining factors for the approval of L.P. gas are, establish the dealer's identity with them and possibly set up an appointment for a group presentation. What the dealer concentrates on is not making a sale (although he is building toward it) but rather gathering information that will help him when the time comes to actually sell.

"The next call is an educational one. This could be given additional impetus through the combined efforts of a group of dealers such as the Gas Institute of Greater Miami (some of whose activities are mentioned later). It is not an attempt to sell an individual architect but is rather an informative presentation directed to a group meeting of, for example, the American Institute of Architects and/or the Producers' Council. Officers of local chapters of these groups can supply dealers with complete information on the procedure for securing time to make a presentation before such a meeting.

"The third type of call is the direct sales call. It is necessary now to bring into play all the assets a good salesman should possess. Everything else centers on this one call. Above all else, dealers should be sure that they have arrived early enough. . . .

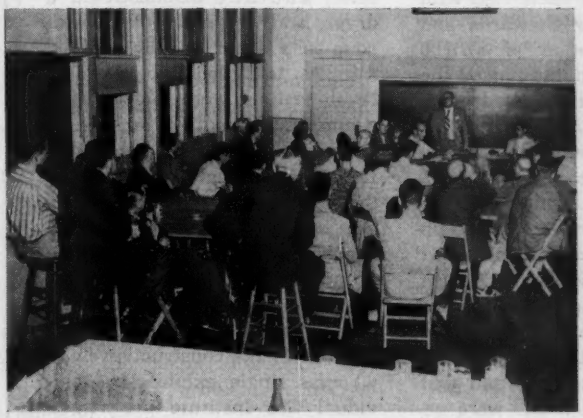
"It is imperative that the LPG dealer approach the architectural firm early in the planning stage of each project. Although the brand of a given product might possibly be chosen at a later date, the type of product is selected early. It is of the utmost importance to the LPG dealer, therefore, to get there early—very early."

That Important Builder

It is essential, in his educational program, that the dealer not overlook the part which the builder plays in the selection of products and equipment in new construction. It was mentioned earlier that approximately 40% of residential construction does not directly employ the services of an architect, which means that there are roughly half a million homes in which the builder will be instrumental in choosing equipment this year. Several of the foregoing ideas pertaining to architects may be applied equally effectively to builders.

BPN staff report

On page 42 of this issue, Glen Fansler of Western Gas & Power in Spokane describes how he is conducting a series of meetings and architects are among those invited. Members of Western Gas & Power and representatives from companies supplying equipment for the gas industry give instructional talks on characteristics of gas and on newly developed equip-



Gas Institute of Greater Miami maintains contact with the local draftsmen's club. Annual meetings between institute committee and club members reveal draftsmen's attitude on specifying gas for homes.

Builders' association in south Florida invites representatives of the Gas Institute to present a panel discussion on the advantages of gas. Here L. R. Chandler answers a builder's question.

The Gas Institute of Greater Miami is also conducting cooperative activities with groups in the construction field. One such contact is maintained with the local draftsmen's club, a group composed of architectural draftsmen. Once a year a committee from the Gas Institute meets with the club, taking over the program of the meeting. At the last such meeting a committee of eight institute members met with about 40 draftsmen and presented a panel discussion on the advantages of a parallel fuel system being installed in every house.

The meeting, according to Gas Institute spokesmen, revealed in general the attitude of the draftsmen on specifying gas in plans for homes, and

Working With Architects and Builders —

Miami Gas Institute Goes to a Home Show

AT the recently staged Better Home Living show sponsored by the Builders Association of South Florida in Miami, gas was a solid success. The Gas Institute of Greater Miami, made up of two gas utilities and 13 LPG companies, pooled resources of its members and rented an exhibit space over 120 ft in length, with space for 12 displays by individual companies.

Dinner Key auditorium, one of the largest in the South, housed the show in which the three major utilities and members of the National Association of Home Builders participated. Over 35,000 people visited the gas exhibit during the eight days it was presented.

Central figure of the institute display was a 12-ft model of a champagne glass, 8-ft across the top and covered with gold foil. In the bowl of the glass was a 6-ft lime tree heavily laden with gold-sprayed fruit. Tiny lights, flashing intermittently, studded the outside of the model and simulated champagne bubbles. Pointing up the institute's theme, "Gas—The Champagne of Fuel," the glass provided a focal point for all onlookers.

Beneath the glass four ranges were set up and each day one of the outstanding chefs of the area prepared a turkey, a ham, and a 25-lb beef roast. The preparation of the food and the cooking continually drew large crowds, but the largest congregated in the evening during the raffling of the meat which had been prepared on the ranges.

To add interest to the meat-cooking exhibit, a culinary arts contest was held and the chefs vied with one another. The Stewards and Caterers Association of South Florida conducted and judged the contest, and while varying degrees of showmanship were exhibited, all the chefs entered willingly into the spirit of the demonstration. Tickets for the drawings were given to spectators who signed up at individual gas dealer booths.

Each of the 12 booths carried out the champagne theme on a smaller scale. A 20-in. champagne glass was mounted 5-ft above the floor on the rear wall of each, and gold pom-poms in the bowls were accented by gold-foil flowers and festoons of grape sprays.

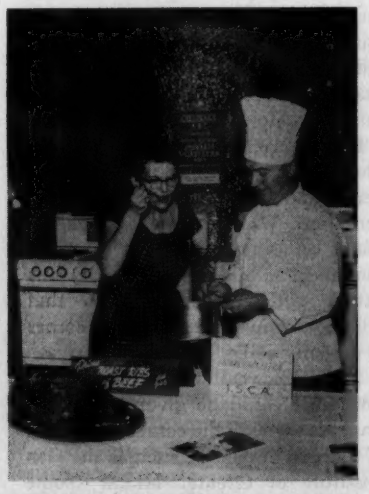
A radio program, sponsored regularly by the Gas Institute, was transferred to the auditorium during the show and originated from the stage adjoining the gas display. The usual format of the show was maintained — activities and achievements in the field of women's organizations were reported —and publicity for the exhibit was worked into the program.

Individual dealers added to the overall attraction of the display by staging demonstrations, drawings for prizes, and give-aways. One dealer broiled a chicken on a rotisserie, another demonstrated a dryer, and a third cooked bean soup in a deep well and offered samples to onlookers. At one booth visitors were given champagne, and at another, orchids.

Commenting on the subordination of individual companies for the enhancement of the fuel angle, Gas Institute Executive Director James E. Fussell explained, "The group effort of the LPG dealers allowed the industry to present an exhibit commensurate with its position in the construction field, whereas single exhibits by individual Gas Institute members would have had little impact." ■

BPN field report

Over 35,000 people visited the cooperative Gas Institute exhibit during the eight days it was presented at the Better Home Living show in Miami. Twelve-foot model of champagne glass pointed up institute's theme, "Gas—The Champagne of Fuel," at the show.



Miami Herald Food Editor Jeanne Voltz was one of the visitors to the culinary arts contest sponsored at the home show by the Gas Institute.

"It is essential, in his educational program, that the dealer not overlook the part which the builder plays in the selection of products and equipmen in new construction."

Continued ➤

indicated what was necessary to further acquaint them with facts about gas usage. Draftsmen do much of the planning of building details, and it is important that they have a complete knowledge of the advantages of gas, it was pointed out.

Drinks, Dinner and Talk

In line with the pattern found most successful at this type of get-together, the program outline included cocktails, the panel discussion, a buffet supper, and finally, an informal mingling of the Gas Institute representatives with the draftsmen for "shop talk." This latter period was found particularly effective as the gas men had an opportunity to contact draftsmen who might be reluctant to talk during the panel discussion but would discuss problems conversationally.

This same pattern was used successfully when the Gas Institute presented a panel discussion at one of the meetings of the local builders' association. For this meeting the Gas Institute had proposed to the builders that the group hold a panel discussion. The builders countered with an offer that the Gas Institute take over one of the regular builders' meetings.

A committee of 10 representatives met with approximately 80 builders, among them men planning construction of hundreds of homes. During the discussion the institute representatives argued the cause of gas and answered questions asked by the builders.

Officers of the architects, builders, and draftsmens' organizations are invited to the annual dinners of the Gas Institute—meetings at which new officers are selected and achievements and aims are discussed.

During the year, the institute mails informative material to members of these groups. Purpose of such mailings, of course, is to keep building groups up to date on major developments in which the gas industry figures.

Cooperation between LPG dealers and builders is strongly advocated by Julius Klein of Caloric Stove Corp. "To get your share of the lucrative home market, contact builders and architects in your area," advises Mr. Klein. "Work with a leading contractor and tell him your story of the convenience of L.P. gas. . . .

"Work out with the builder a sample home that will be a complete LPG installation. Heat it with gas, install a gas dryer, a gas hot water heater, a gas disposer, and above all, a gas built-in range. Work with the various appliance suppliers. You can draw on their experiences in other markets.... You might even set up a promotion around a sample house advertised as an all-gas home featuring the seven uses of gas."

Mr. Klein held out this note of warning: "Be sure that your price to the consumer is competitive. Even if you have to 'work close' on the sample house and the initial installations, the additional load will more than compensate you in the long run. It will give your present customers the feeling that they use the most modern fuel."

Direct Mailer

He went on to suggest that after the dealer and the builder have tested the success of such a sample home, a direct mailer describing the promotion should be prepared and sent to every builder, architect, and gas prospect in the area. The all-gas home should be used as an example of a modern LPG installation. He pointed out that the success story is a natural calling card for use with other builders.

A 25-house development in Newtown Square, near Philadelphia (see BPN, Dec., 1954, p. 160), was cited by Mr. Klein as an example of a successful promotion. "It was an all-LPG set-up," he related. "Over the Memorial day weekend more than 3000 people passed through. Two actual sales were closed and about 10 were pending. The L.P. gas dealer was on hand to explain the convenience of gas and the visitors were receptive. . . . He analyzed the cost factor, and with the bulk rate which he was able to extend home owners, his price was competitive."

A similar gasmen-builders cooperative display brought excellent results recently in Pittsburgh. The three local gas companies joined forces with 14 builders and provided a 25-home "open house" through which 100,000 visitors strolled during a two-week period.

Three Benefit

Walter Lowe, chairman of the natural gas companies' home builders committee, reported, "Even though all the display houses happen to be on the lines of only one of the gas companies, we feel that all three companies benefit equally from such 'living show rooms,' drawing as they do such marvelous crowds from all our areas. We know that people will want to buy gas equipment and appliances if they can see them actually working—and that's what we're aiming to let them do."

The section in which these houses were located happened to be on the natural gas lines, but the idea is just as applicable to an LPG area.

It behooves all dealers contemplating a cooperative program with builders and architects to be well informed on up-to-the-minute developments in the gas and appliance fields. They should be proficient and reliable consultants. Manufacturers of gas equipment are interested in furthering the overall interests of gas, and should be consulted for technical data. They will gladly cooperate by furnishing information and useful sales promotion material. And men in the building fields will be grateful for having the information passed on to them. ■

Management Policies

We're Not Afraid of Natural Gas!

Glen Fansler is a typical successful LPG dealer of the Northwest. His Western Gas & Power Co. of Spokane supplies most of the city's gas customers, and his territory includes many outlying districts, extending to towns in northern Idaho. Almost uncontested, the company's gas business has prospered during the past several years, and a flourishing appliance business has added to its total income. But Mr. Fansler, like many other LPG dealers throughout the Northwest, lately has given considerable thought to the effects that natural gas will have on his business when the projected pipeline into this section is completed sometime within the next two years. To learn his opinions BPN went to Spokane and conducted the following interview. We feel that Mr. Fansler's attitude toward the inevitable inroads that natural gas will make is a sensible one, and that the educational plan he has instituted is very worthwhile.

By Harold C. Hood
Field Editor

SPOKANE is the center of a vast undeveloped section of the Northwest known as the Inland Empire. Abounding in mineral wealth, valuable stands of timber, and agricultural potentials, this mountain-rimmed section extends from the Great Divide on the east to the Cascades on the west, and encompasses sections of Washington, Oregon, Idaho, and Montana.

Since 1940 the area's population has increased by 51%, keeping pace with rapidly expanding industrial and agricultural enterprises. Its huge untapped resources provide fertile territory for ambitious businessmen, and those in the natural gas and fuel oil industries intend to get their share of the business.

As a result, a highly competitive fuel situation is shaping up, and independent LPG dealers are taking stock of their position. Glen Fansler is one of these.

Q. How soon do you expect natural gas to arrive in the Spokane area, Mr. Fansler?

A. From present indications, Pacific Northwest Pipeline Co.'s 26-in. pipeline from the San Juan basin of New Mexico will be completed early in the spring of 1957.

Q. Will the arrival of natural gas seriously affect your present business?

A. Yes, it will. We expect to lose about one-third of our current gas load during the first 18 months after natural gas arrives. We'll be badly hurt at first and will lose considerable revenue during that period.

Q. What long-run results do you anticipate?

A. We're working on the assumption that three years after the coming of natural gas we'll be in a better position, businesswise, than we are now. However, to achieve this, we're going to have to get out and work as we've never worked before. We'll need the cooperation of LPG suppliers, appliance dealers, and various segments of the building industry, if we expect to compete effectively in landing domestic and industrial loads.

Q. To what specific factors do you attribute this increase in business after the first three years? Won't natural gas, being in a more favorable position, pricewise, continue moving in on your territory?

A. The congested city area will no doubt afford us very little new business. Our future development will be primarily in the fringe areas beyond the mains. And people in these sections will become more gas conscious because of the publicity given to the arrival of natural gas and as a result of newspaper and radio advertising by the gas companies. This advertising will reach many people whom natural gas will be unable to service. These people will come to us. People in the Northwest, and in the Inland Empire particularly, do not consider the difference between natural gas and LPG. To them gas is gas. They do, however, differentiate between oil and gas, and between electricity and gas. If LPG and natural gas interests fight each other they will partially destroy the effectiveness of either to meet the competition from these other two directions.

Q. How will the coming of natural gas affect your appliance business?

A. We'll probably sell quite a few

Glen Fansler explains the operation of a heater in the showroom of Western Gas & Power Co. in Spokane.

appliances to the natural gas customers as well as to our own. On the other hand, many new gas appliance stores will spring up to take advantage of this new market. Advertising by these people will increase the gas consciousness we hope for and will indirectly help our gas business. Appliance manufacturers also will avail themselves of the opportunity for increased sales in the area and will undoubtedly develop more aggressive merchandising activities. All of these factors will tend to better our position.

Q. Are you concentrating at the present on fringe areas in your sales efforts?

A. We are interested in promoting gas in general regardless of whether it is LPG or natural. We do not take the attitude that an installation likely to be converted upon the arrival of natural gas holds no interest for us. Instead we are attempting to develop gas even though we realize that we stand to lose a particular account immediately when the pipeline is completed. We feel that we cannot take the short-sighted view of developing only LPG.

Q. You have suggested that a concerted effort on the part of the gas industry as a whole will be necessary to meet competition from the oil industry. What steps has this latter group taken to better its position?

A. During the past two years two major oil pipelines to the Spokane area have been completed. One comes from the Salt Lake City area and the other from Billings, Mont. These lines have brought three additional major oil companies to compete for a share of the available business in the Inland Empire. On the west coast, Shell is constructing a $50 million refinery at Anacortes, Wash., and General Petroleum will have a new $35 million refinery on stream at Ferndale, Wash., shortly after the first of the year. The major oil companies are getting their organizations into highly efficient order so as to be in a competitive position when natural gas arrives. They expect to be competitive, Btu-wise, with natural gas.

Moreover, the major oil companies of the Pacific coast are now organizing one of the most intense advertising and sales programs conceivable for the purpose of furthering the sale of oil. The electric utilities are also stepping up their sales activities comparably.

BPN staff report

When the campaigns offered by these two competitive fuels get under way, I am sure that we who make our livelihood in the L. P. gas business will find that our present-day methods of doing business will fall far short of meeting the challenge of competition. We must realize that if we are to grow with the Northwest we, too, must be competitive in price, have a merchandising and advertising program somewhat comparable to oil and electricity, and fight for every account we can get. There will be no place in this area for any L. P. gas dealer who is not aggressive and financially sound.

Q. How do your present transportation costs compare with those of the oil industry?

A. Total freight cost per gallon on oil flowing to the Spokane market from Billings and Salt Lake is now about .016 cents per gallon. This is in contrast with the six cents-per-gallon freight cost on LPG from the California fields. I certainly believe that it behooves the supplier as well as the distributor to endeavor to work out a program whereby we can materially reduce the delivery cost of LPG. At present we are delivering propane to our customers at approximately 10% less than it is being delivered in the Seattle, Tacoma, Walla Walla, and Portland areas. We are doing this in the hope that it will create further gas consciousness and satisfied users.

Q. You mentioned that you'll need

Showroom of Western Gas & Power Co., Spokane, Wash. Glen Fansler, who has a complete stock of appliances, anticipates volume sales when natural gas reaches his area.

the cooperation of certain segments of the building industry. What have you done to further this?

A. We have been conducting a series of educational meetings for the benefit of architects, builders, plumbing and heating contractors, and appliance dealers. Our purpose is to instruct these men who will be concerned with the gas installations of the future in its use and applications, and to make them realize the versatility and advantages that gas offers. We hope by these meetings to effect better installations and to create more widespread gas consciousness. In the past, a few installations by people who are not familiar with gas have resulted in accidents that have hurt the gas industry. We cannot afford any more of these setbacks resulting from accidents, nor the public distrust which results from careless installations. We look forward to the time when plumbing and heating contractors will install the bulk of the gas equipment, but before this becomes possible we feel that a large educational program is going to have to be undertaken by the gas industry.

Q. What sort of programs do you have at these meetings?

A. The meeting we had last week at the Davenport hotel, for example, was opened by comments which I made on the subject of increasing gas consciousness in the area. I brought out the possibilities of increased LPG supply throughout the Northwest due to stepped-up production in western Washington, Montana, and Wyoming, and pointed out that the supply situation holds some hope for lower prices to the consumer in the future.

William Wallace Co.'s representative, Fred Lindsay, spoke on good venting practices and illustrated some of these practices by means of a projector and screen. Bill Nason of General Controls used the same means to illustrate some of the latest developments in controls.

Our own sales manager, Mr. Bangs, spoke on the flexibility and diversity of gas equipment as contrasted with oil and electric equipment. Our Mr. Rossing briefly discussed the characteristics of gas, and gave several demonstrations pointing up the cleanliness and safety of gas. The better part of the three-hour meeting was consumed by a question and answer session which proved the eagerness of architects and engineers to learn about gas, but which also emphasized the fact that this group is not well versed in the characteristics and potentialities of gas.

Q. How often do you hold these meetings?

A. We plan to have one every six to eight weeks in the future. Everyone's participation and cooperation is invited—these are not private meetings. We are not trying to sell a product; we are merely attempting to educate people on gas and gas equipment and show them what's new, how it functions, and how it differs from competing equipment.

Q. I suppose it's too early in the program to see any direct results?

A. On the contrary. We have already noticed a distinct increase in interest among contractors and architects. Many have asked questions with reference to new specifications on their projects, which indicates that some of our efforts are taking hold.

Construction at Northtown shopping center in Spokane, where LPG will handle the heating load until natural gas arrives. Six 1200-gal. tanks will be set up to store sufficient propane.

Fleet of trucks and storage belonging to Western Gas & Power Co. Company's gas and appliance business has grown rapidly in the past several years.

Q. Is yours the only company conducting meetings of this nature in the area?

A. No. Portland Gas & Coke has been conducting similar meetings for years, and the Seattle Gas Co. has been doing likewise. These are both city utilities, and in my opinion these programs are very beneficial to the LPG men in those areas, showing that efforts by the one group do aid the other.

Q. You mentioned earlier that you do not lose interest in a possible gas customer just because there is a chance that he will convert to natural gas in the not-too-distant future. Can you give me an example of how you put this policy into effect?

A. Probably the best example is the Northtown shopping center being built three miles from the center of Spokane. A group of 30 enterprises, including department, drug, food, and hardware stores, a laundromat, a lawyer's office, and others, will be housed in the 232,000 sq ft of the center, and all have been piped for gas for space heating and water heating. And until gas arrives LPG will carry the load.

(Mr. McCarthy of E. D. McCarthy & Associates, designers and real estate agents for the Northtown shopping center, states: "The decision for natural gas in Northtown was rather a simple one. First, after traveling to several areas and visiting shopping centers of the size that we expect to build, I came to the decision that the best way to handle the situation was

to provide individual heating plants for each tenant regardless of how small the room.

"The advantages of this are obvious. From a management standpoint the maintenance of a central heating plant creates quite a problem. Furthermore, the tenants in a shopping center observe different hours, particularly in this area where we have drug and food stores open from nine to nine every day and no doubt will have the balance of our stores observing an eight- or nine-hour day.

"I further found a very definite psychological advantage in having the tenant pay his fuel bill directly to the utility rather than to the landlord. It is natural for the tenant to get his fuel and electrical costs mixed up with his rent when he pays it all to one source.

"Since we made the decision to have individual heating units, the installation of propane units resulted in a substantially lower first cost. We believe that the cost of the operation, which is a tenant function, will be higher for a year or so until such time as we are able to connect to natural gas, which presumably will be a reality in Spokane in the reasonably near future.")

Q. Did the Northtown shopping center call for a bulk tank installation at the site?

A. Yes. Six 1200-gal. tanks were installed in one location behind the shopping center and are being connected to the piping system of the stores and offices. The estimated load per year is between 85,000 and 100,000 gal. Because propane was available as a temporary fuel, this account was assured for the natural gas people, and, of course, during the next year or so will provide good business for us.

Q. So, indirectly, each group aided the other?

A. Yes, and we hope to further this spirit of unification in both factions of the gas industry. We're interested in helping the natural gas industry develop, hoping that its development may bring us some good stable business in the future, too. ■

For further information about making architects and builders more gas-conscious, see "Architects and Builders — Dealers' Allies' in the Battle of the Fuels," beginning on page 38.

Mobile display coaches are used by Suburban Propane Gas Corp. of Whippany, N. J., to demonstrate gas range, clothes dryer and water heater to prospective customers.

Mobile Display Coaches Boost Sales for Suburban Propane

TWO mobile display coaches have materially increased the sales of bottled gas appliances in rural areas for Suburban Propane Gas Corp. of Whippany, N. J. Specially designed and built by the Boyertown Auto Body Works of Boyertown, Pa., the units have been in service for one and one-half years.

This merchandising plan has proved so successful that three additional units are slated for delivery.

The basic body of the coaches is a Boyertown MC-10 Merchandiser on a Chevrolet Model 3742 forward control chassis. The inside length is 10 ft; height and width of 6 ft each afford ample room for customers to inspect and fully test the appliances.

The "showroom" area is lined in light-colored simulated tile with dark flooring. The gas range, clothes dryer and water heater are placed for easy demonstration. Piping is concealed in walls and floors. Propane tanks and the lighting system are hidden in the skirting of the coach.

The coach merchandising plan is simple. Suburban Propane sales representatives first interview prospects for new appliances. They set the dates for home demonstrations in the display coaches. Each coach carries a trained demonstrator who aids the housewife in fully testing the appliances.

In addition to demonstrations along a planned route, the coaches also serve as mobile billboards, advertising the company and its services on the road, in local parades, and in other community events that might produce prospects in any sales district.

According to S. J. McLagan, sales promotion manager of Suburban Propane, one sale totaling more than $2000 can be directly attributed to the display coaches. The first demonstration will not necessarily result in a sale, according to Suburban, but the prospect will often place an order many months after the demonstration. ■

Seattle Public Library
JAN 11 1955

1953 • Fire Loss Distribution Chart

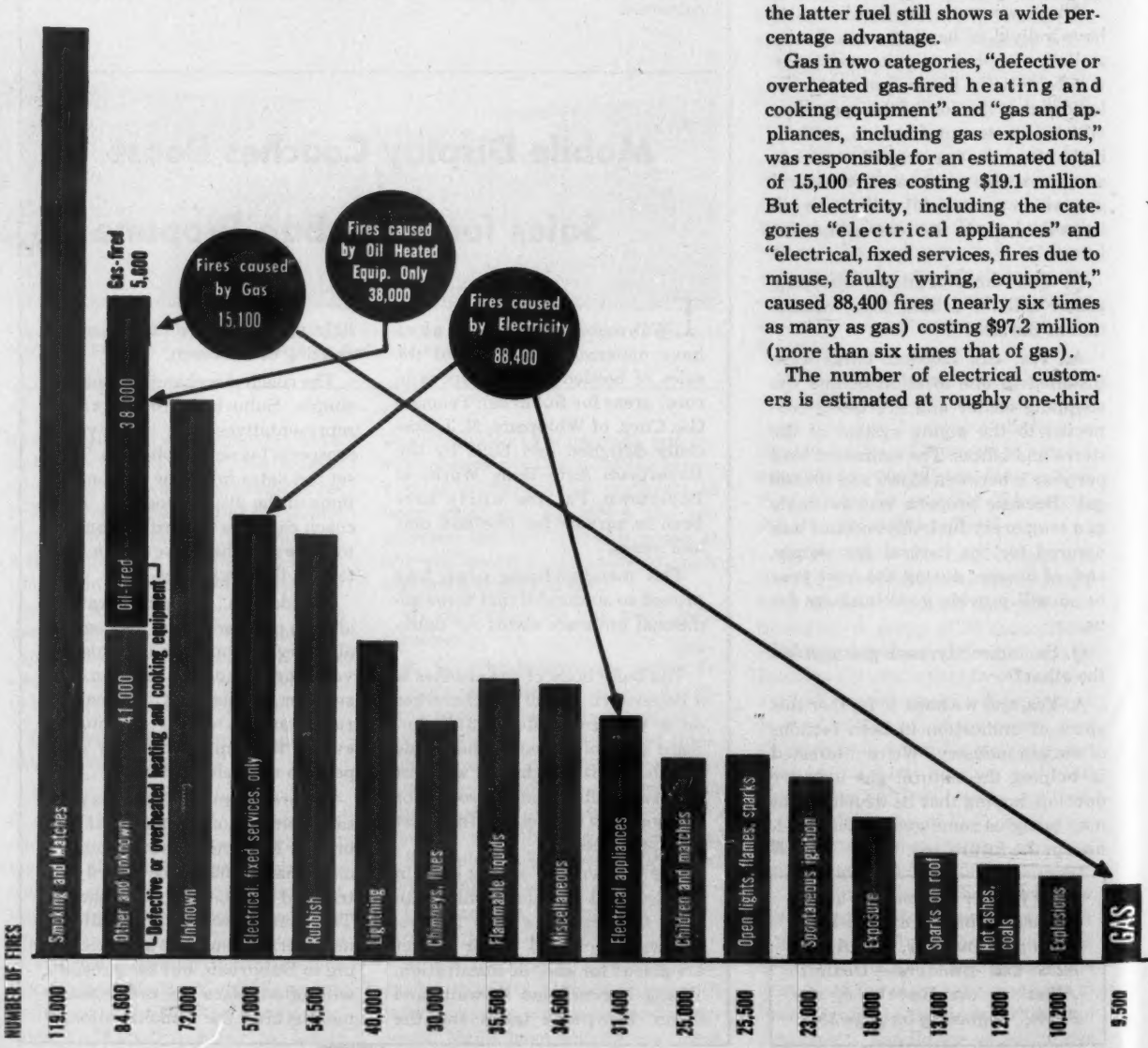
• Statistics Prove That Gas Is the Safest Popular Form of Fuel

ONCE again, despite the rapid growth in its consumption during recent years, gas (including LPG) has proved itself to be safer than the other major fuels.

Annual estimates of number of fires and dollar losses attributable to the various classes of causes (see table), prepared by the National Fire Protection Association, show that in 1953 gas ran well behind both electricity and oil as a major cause of fires. Even considering the greater number of customers using electricity than gas, the latter fuel still shows a wide percentage advantage.

Gas in two categories, "defective or overheated gas-fired heating and cooking equipment" and "gas and appliances, including gas explosions," was responsible for an estimated total of 15,100 fires costing $19.1 million But electricity, including the categories "electrical appliances" and "electrical, fixed services, fires due to misuse, faulty wiring, equipment," caused 88,400 fires (nearly six times as many as gas) costing $97.2 million (more than six times that of gas).

The number of electrical customers is estimated at roughly one-third



greater than the number of gas customers, so even an adjustment on a per capita basis would give gas a material edge on its chief competitor.

In a way, gas shows up even better against its other competitor, oil. In the single category, "defective or overheated heating and cooking equipment," fires attributable to oil aggregated 38,000, while those traceable to gas were 5600. Dollar losses were in about the same ratio, $30.9 million as against $6.1 million.

But even more impressive is the fact that oil fires and oil-fire losses in this *single* class were much higher than in *both* classes of gas fires listed above. Other types of oil losses cannot be found from the chart, although it may be safely inferred that this fuel was responsible for a share of those losses listed in the two "liquids" categories. According to the 1950 census, there were only approximately 1½ million more domestic oil burner installations than LPG customers, so again gas outstrips a competitor on a percentage basis.

These figures, compiled by the authoritative and unbiased NFPA, continue to provide armor for the industry, which has suffered from the barbs of its competitors and the failure of the general public to understand that gases, properly handled, are the safest fuels known. These figures should be used by every dealer in a positive way—not as an excuse for chortling over the misfortunes that befall the competing fuels, but to confirm the facts as those of us in the industry know them:

Gas is the safest fuel. ■

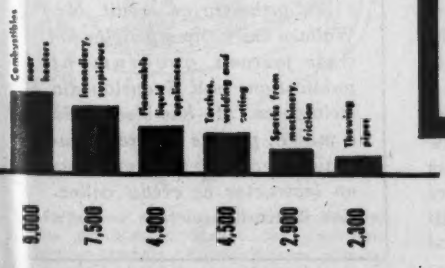
ESTIMATED DISTRIBUTION OF U. S. BUILDING FIRE LOSSES BY CAUSES — 1953*

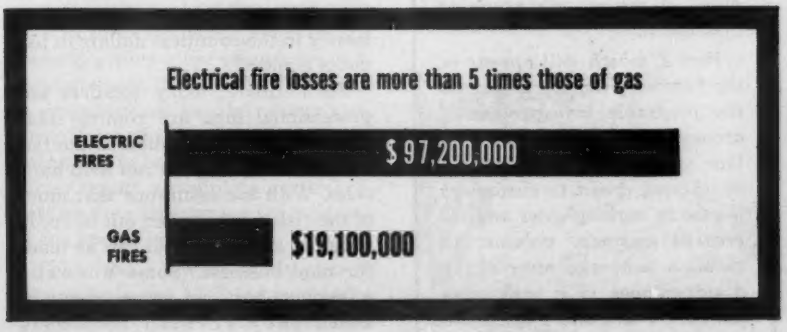
***RELATIVE ORDER OF MAGNITUDE OF FIRE LOSSES BY CAUSES, ESTIMATED BY NATIONAL FIRE PROTECTION ASSOCIATION**

	No. of Fires	Losses
Chimneys, flues — defective or overheated	30,000	$22,000,000
Sparks on roof	13,400	9,600,000
Defective or overheated heating and cooking equipment —		
Oil-fired equipment	**38,000**	**30,900,000**
Gas-fired equipment	**5,600**	**6,100,000**
Other and unknown	**41,000**	**38,500,000**
Rubbish, ignition unknown	54,500	12,000,000
Combustibles near heaters	9,000	8,270,000
Open lights, flames, sparks	25,500	18,000,000
Hot ashes, coals	12,800	10,700,000
Smoking and matches	119,000	65,000,000
Children and matches	25,000	12,800,000
Electrical, fixed services, fires due to misuse, faulty wiring, equipment	**57,000**	**80,400,000**
Electrical, power consuming appliances	**31,400**	**16,800,000**
Flammable liquids, misuse of including vapor explosions, grease, tar, etc.	35,500	36,600,000
Flammable liquid appliances, including lamps, blow torches, salamanders, etc.	4,900	2,740,000
Torches, welding and cutting	4,500	52,250,000†
Gas and appliances, including gas explosions	**9,500**	**13,000,000**
Spontaneous ignition	23,000	37,610,000
Lightning	40,000	36,620,000
Thawing pipes	2,300	2,780,000
Sparks from machinery, friction	2,900	3,700,000
Incendiary, suspicious	7,500	21,600,000
Miscellaneous	34,500	18,550,000
Unknown	72,000	278,600,000
Explosions, miscellaneous and unclassified	10,200	23,400,000
Exposure	18,000	30,600,000
TOTALS	**727,000**	**$889,120,000**

† Includes one cutting torch fire causing $45,000,000 loss.

SOURCE:
NATIONAL FIRE PROTECTION ASSOCIATION





Management Policies

A Credit Bureau Is A Good Business Partner

Credit bureaus have a definite place in the scheme of business. The extension of credit on a sound basis is more than a defensive measure to keep the dealer from losing money through bad debts. It is a way of building up business, as the author points out.

By Harold A. Wallace
Associated Credit Bureaus of America Inc.
St. Louis, Mo.

MORE sales and more profits are the chief concern of every business these days, but one point which is not always taken into consideration is the fact that sales can be built by stepping up the number of credit transactions handled.

Just like any other credit granter, those in the L. P. gas industry can do this with the greatest confidence if each credit customer is investigated by means of a credit report from the local credit bureau.

Time and merchandise both go into a credit transaction. The LPG industry, more than many credit granters, is especially vulnerable because merchandise is expensive and time can never be repossessed. It's only sensible, therefore, to investigate the acceptability of a credit customer before deciding to sell to him on credit.

The local credit bureau, if affiliated with the 1750 bureaus in the Associated Credit Bureaus of America, has the trained personnel to save time and money. It can save time because in most cases it will already have a record on the customer. It saves money in the countless dollars in bad debts avoided.

Furthermore, today retailers and professional men are coming more and more to a realization of the fact that the credit bureau can help build sales. With the assurance that much of the risk can be taken out of credit sales, an aggressive bid can be made for new business. Some bureaus, moreover, have an arrangement by which they furnish newcomers' names to such of their members as pay for that service. The members can then solicit the newcomers' business.

Where does the credit bureau get its information and why is it so much better than doing individual investigation? To begin with, each credit bureau had its start because businessmen wanted a central clearing-house through which they could exchange facts about customers' paying habits. Businessmen became members; they

PART 1 — A Credit Bureau is the Key to a Sound Credit Policy

This is Part 1 of the series "A Credit Bureau Is the Key to a Sound Credit Policy." Here the author discusses the organization of the credit bureau and many of the reports available through it.

Part 2, which will appear in the February issue, will discuss the profitable management of accounts receivable. Mr. Wallace will treat the advantages of offering credit to customers —ease in making sales and increased business volume, to mention two—and some of the disadvantages of a cash sales policy. He will also discuss the steps leading to a sound policy for extending credit to consumers.

Harold A. Wallace, executive vice president and treasurer of Associated Credit Bureaus of America Inc., has been in the field of credit bureau operation since 1925. He entered the field as manager of bureaus in Bloomington, Morris and Joliet, Ill.

An authority on credit, Mr. Wallace has written articles for trade journals, government publications and Encyclopedia Britannica. He has also made a motion picture on credit bureau operations, and served as an instructor at credit collection institutes.

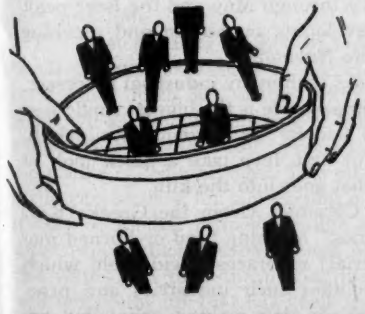
signed a membership contract, and agreed that they would report their trade experiences to the bureau and pay a certain amount for information taken out of the bureau's files. This interchange of information is the backbone of the credit bureau.

A "master card," as the record on an individual is called, does not contain merely his trade experience. Besides recording all the merchants' and doctors' experiences with the consumer, the credit bureau records items from newspapers, court records, marriage and divorce and death notices, and other facts which may affect a person's ability or desire to keep his bills paid as agreed. The bureau will also have a record of how much property he owns, and whether he has a car.

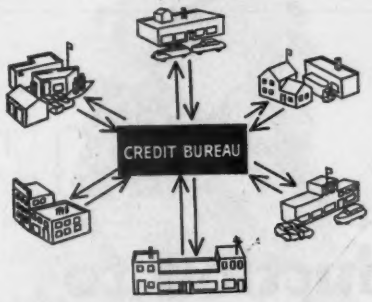
All of this information is generally already in the file. Through the increasing cooperation of credit bureau members, most bureaus are keeping their records constantly up to date. In most instances, an in-file report will suit the purpose, save time, and maybe save a sale.

However, in the case of a large sum of credit involved, or if unusual circumstances are indicated, the businessman may wish to specify a revised (up-to-date) report, which means that the bureau will verify all information as to this amount and unearth any additional facts which may have a bearing on the customer's desirability.

The credit bureau will give both in-file and revised credit reports either orally or in written form. It will sell



Information contained in credit bureau files provides a screen for profitable credit customers. Bureau reports give information about customer's finances, job.



Interchange of information is the backbone of the credit bureau. Members report their trade experiences to the bureau, receive information from the bureau's files.

service to members and non-members alike, but naturally non-members are required to pay more for reports since they do not contribute to the stockpile of data in the bureau. Also, oral reports are not given to non-members over the telephone as the risk of giving information to someone merely interested in gossip would be too great.

The three types of credit bureau reports most frequently used are the standard consumer report, the trade clearance report, and the previous residence report.

The last two are more pertinent to the LPG industry. The trade clearance report is used to check on customers where there is no particular reason to suppose anything unusual is wrong, and the previous residence report gives information about newcomers to town—how they paid their bills in their last home town, etc. If there is a very large sale under consideration, or if there is any reason to suppose there may be unusual circumstances, the inquirer would probably want to order the standard consumer report, a complete, revised report on the customer, or perhaps one of the special reports.

There are a few reports which fit especially in the LPG industry. The public record search will assure you of the fact that there are no other liens against the customer's property. If other credit granters have liens of long standing, why suppose that this would not happen again?

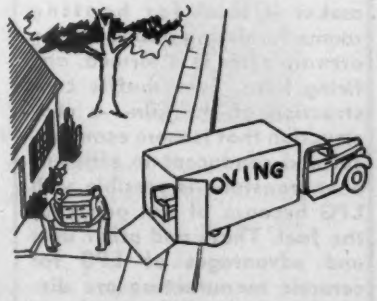
A modernization report will give such specific facts as (1) in whose name is the legal title to the property, (2) amount of mortgage, if any, and terms, status and date of expiration, (3) amount and status of taxes on property.

There is also the collection aid report. Suppose merchandise has been installed, or services performed and the customer does not pay. The collection aid report covers important questions, such as the number of a customer's dependents, his position, reasons for being out of work (if he is), what property owned and where located, possibility of inheritance and other facts which may direct the collection effort.

The convenience of being a credit bureau member and being eligible for telephone reports is great. It means much in terms of sales that can be made in a hurry and customers that need not be kept waiting.

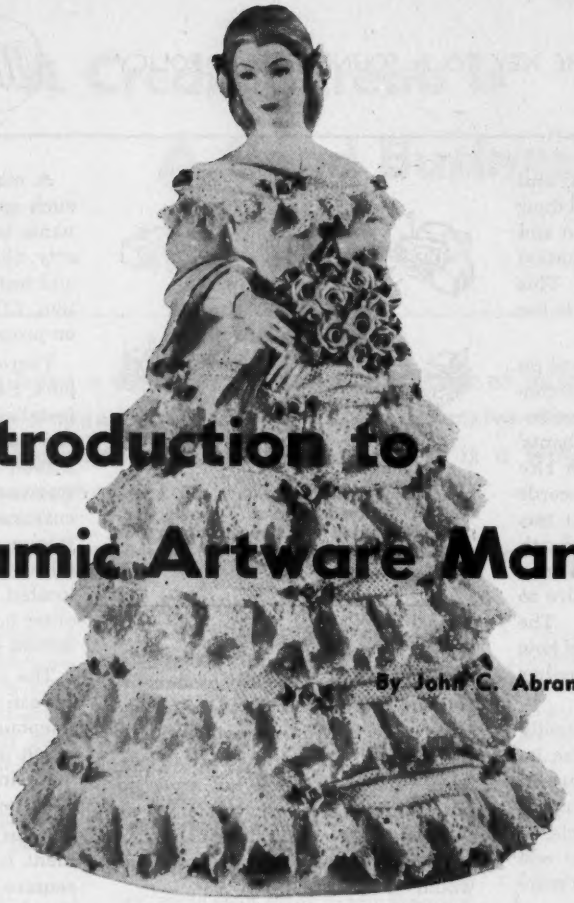
If, for example, some type of equipment is being sold which does not require a skilled person to install it, the dealer may wish to let the customer take it with him. If he is a bureau member, the dealer calls for an oral in-file report, and thus gets the facts to help approve or turn down the sale.

Whether the dealer has a policy of drawing up contracts and doing business on the installment basis, or whether he uses an oral agreement with customers, he can do more business with greater security if each credit sale is based on a thorough investigation by the credit bureau. ■



Some credit bureaus offer a notification-of-newcomers service, and give information about newcomers' former credit transactions, address and employment.

Load Building Potentials



An Introduction to Ceramic Artware Manufacture

By John C. Abram

PART 1

Know Your Industrial Markets

The heating load in ceramic manufacture is fairly stable, and one that the dealer should consider when developing industrial markets. The control that is possible with L. P. gas makes it ideal for heating rooms for drying molds, drying artware after it is formed, and firing kilns. Semi-muffle construction of the kiln—a construction that is more economical and conducent to efficient heat transfer—is possible with LPG because of the purity of the fuel. These and other uses and advantages of LPG for ceramic manufacture are discussed in the first article of the series, "Know Your Industrial Markets."

ARE you getting your share of the process heating load in the ceramics market? It's a big market and a growing one, too. One that can consume a good share of your total gas supplies. One that the dealer should be conversant with.

Today, with emphasis on decorative effects and new national spending habits freeing money for home furnishings, housewives are putting more into the potters' coffers than ever before. With the prevalence of the 40-hour week, there has been a nation-wide trend to "do-it-yourself" and among this group amateur ceramicists are sprouting in increasing numbers. Their fuel loads are not very big individually, but nonetheless they are promising, and in the aggregate, well worth cultivating.

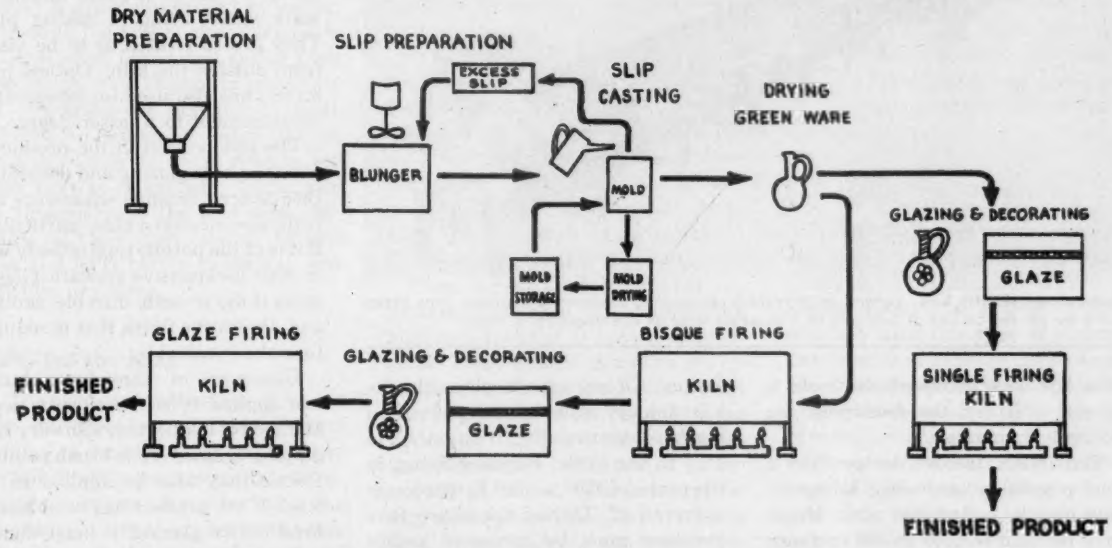
Best of all, this is one more in the long list of processes where gas shines. The close control that only gas or LPG can give is of utmost importance in ceramic manufacturing, because one of the big secrets of quality production lies in controlled firing. At this point, material that went into the kilns as green ware either emerges as a usable product of which the maker can be proud, or as an item of dubious quality with a loss in profits to the manufacturer.

The artware maker's fuel load is a fairly stable one, but it does experience some peaks and valleys. However, these should offer but few problems. Merchandising shows in January and June result in orders with peak usage building up in late February through May and the later peak developing in August and reaching into November.

As with many industrial processes, temperature is the biggest single key to success in ceramics production. But first, let's take a quick look at what goes into the kiln.

Ceramics (from the Greek "Keramos," meaning fired or burned material) embraces a wide field which includes such industries and processes as glass making, enameling, refractory manufacturing, cement making, brick and sewer tile making and

FLOW DIAGRAM FOR ARTWARE PRODUCTION



whiteware manufacture. The artware phase of whiteware manufacture is most generally associated with the word ceramics, so we'll consider only that field here.

Included in the artware group are figurines, ash trays, vases, lamp bases, cups and saucers, plates, pitchers, planters, and thousands of other items found on knick-knack shelves throughout the world.

Briefly, the production of ceramics involves five separate steps: materials preparation, forming, ware drying, glazing and firing. There are a number of materials used in this field; some of these are kaolin clay, ball clay, quartz, feldspar, bentonite, talc, and lime.

The most common method of material preparation results in a solution, using up to 50% water, which is known as slip. The mixing of the solid materials and water is done in a machine called a blunger. This material can be used for slip casting or it may be further refined through a filter press which removes most of the water and then through a pug mill where the air that has been absorbed and trapped in the clay mass is removed under vacuum.

Four methods of forming are commonly used. The ancient method employing the potter's wheel has evolved to the modern process known as jiggering, which still uses a rotating base on which the product is formed. Extrusion forming and pressing are two techniques not particularly adaptable to the artware field. The slip method of casting is the forming method most commonly used.

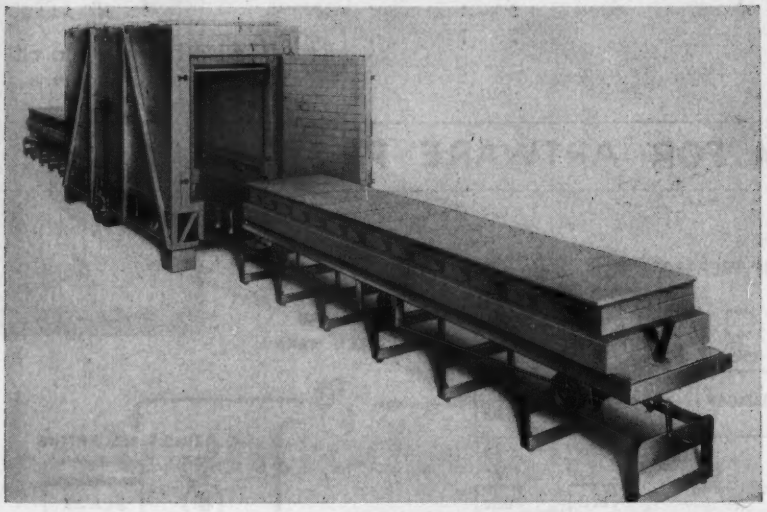
In slip casting, the slip is poured into the cavity in a Plaster of Paris mold until it is full. Solids from the slip build up in the mold cavity as the water is absorbed by the porous plaster. When the desired clay thick-

About the Author

John C. Abram is well qualified to author a series on industrial markets for gas. Holder of a BS degree in engineering from UCLA, he has been with the Southern California Gas Co. as an industrial gas engineer since 1951.

Prior to joining Southern California Gas, Mr. Abram worked as a sales engineer for heating, ventilating and air conditioning equipment for George F. Hartman Engineering Co. of Los Angeles and Aladdin Heating Corp., Oakland, Calif. He also spent three years with Lockheed Aircraft Corp.

Mr. Abram was recently appointed an administrative aid for the new business sales staff at Southern California Gas Co.



Car-bottom shuttle kiln, instead of providing continuous movement, requires that green ware be loaded on car at one end of kiln while load at the opposite is fired.

ness has been achieved, the mold is turned over and the remaining slip poured off for reuse.

The molds themselves provide a load possibility, and some salesmanship may be called into play. Molds may be used for 200 to 400 castings, but after a cast is made, the mold must be dried before it can be used again. Drying usually requires from 12 to 24 hours, but this job may be considerably accelerated by the application of heat to the room where molds are stored. Close control, which is an LPG specialty, is a must, however, because excessive temperatures will cause cracking. Good results may be obtained with a temperature range of 75° to 125° F, combined with high circulation of the warm air.

Controlled Temperature

After the ware has been formed, smoothed, and trimmed, it must be dried to prevent cracking and distortion in the firing operation. Here again, in the simplest types of manufacture, open-air drying may be adequate; but in the more complex operations, and depending upon the ware involved, closely controlled temperatures and humidity are usually required. Shrinkage during this stage of production is critical. Since each type of slip has its own shrinkage characteristics, considerable science is involved in establishing the control.

Once dried, the ware is ready for the kilns. The initial kiln firing of the green ware gives a product known as bisque. Green ware is placed in the kiln in a dry state, with the absorbed water content ranging from only 2 to 4%. In the initial stages of firing, in the range of 150° to 350° F, this water is driven off. During this phase, temperature must be increased rather slowly to prevent deterioration of the ware. Too rapid heat increases will cause pockets of steam to form below the clay surface with resulting bubbles or small explosions.

The next stage of firing drives off the water of crystallization of raw materials, with the chemical change starting as low as 500° F and continuing up to temperatures as high as 1100° F.

Maturing of artware generally takes place in the range of 1850° F, but some bodies mature at temperatures as low as 1500°. At these temperatures the ware is very porous, as vitrification—a state defined as a condition of minimum porosity in which the body takes on a glassy texture—is only achieved at considerably higher temperatures. Heat ranges between 2000° (for feldspar) and 2400° to 2700° (for materials comprising a good share of vitreous ware) are needed for vitrification.

Temperatures are measured in terms of cones, which are devices compounded of various formulas in such a way that they will begin to physically "droop" at predetermined temperatures. An Orton standard pyrometric cone 06, for example, will droop at an end point of 1841° F when a rate of temperature increase of 68° F (20° C) per hour has been held. If the rate of temperature increase is higher, the maturing temperature of the cone is slightly higher also. These temperature measuring devices are available in a wide range of "end points," cone 022, for example, having an end point of 1085°, while cone 20 has an end point of 2768° F. The cones are set in the kiln among the ware while firing is taking place. They are so located as to be visible from outside the kiln. Optical pyrometers are also used for temperature measurement to a lesser degree.

The last process in the production of ceramics is glazing and decorating. Bisque-fired ceramic whiteware is of little commercial value, particularly if it is of the porous type of body used in most inexpensive artware. Glazing gives it the smooth, durable, sanitary and decorative finish that is required to make it saleable.

Glazes are of many types, but all are applied in suspension in water. Methods of application also vary from dipping to spraying to brush painting. Decals may also be applied in this step. If the product has been bisque-fired before glazing, it must then be refired to the maturing temperature of the glaze.

Single-Fire Method

For some types of ware, a single firing is satisfactory and glazing precedes any firing, eliminating the separate bisque firing. In single-fire manufacturing, green ware is formed, dried, glazed, and generally decorated before any firing takes place.

Decorative glazes fall into two classifications, underglazes and overglazes. Underglazes are applied to the bisque before any glaze firing is done. After firing, the colors and patterns are beneath the clear glassy surface, and are consequently durable.

Overglaze decoration, on the other hand, is applied to a previously glazed surface, after which refiring is done to transform the decorations to a glassy state. Since these decorations are on the surface, they are less durable. Most decalcomania work and nearly all metallic decorations are applied as overglazes.

Glazing temperatures vary over a wide range, with some overglazing operations completed as low as cone 020 (1100° F) with other glazing requiring as high as cone 19 or 20 (2750 to 2800° F). In single firing opera-

tions glazing temperaures are a secondary consideration because maturing of the bisque needs a higher temperature and becomes the controlling temperature.

Certain defects in the finished product are quite common, one of which is the appearance of very small pinlike holes in the glazed surface. This defect is generally caused by sulfur. Although the fuel is often blamed, it is most often found that sulfur from the molds, or a change in materials, or overfiring are actually at fault. There are numerous other factors that are likely to cause defects, but they have no relationship, either real or imaginary, to the fuel used. Because of their high quality, natural gas and LPG rarely cause any production problems.

LPG for the Kiln

The primary application of gas in the production of artware is, of course, in the kiln. Kilns fall into two broad classifications, according to operation: continuous and periodic. The continuous kiln is known as the tunnel kiln. In this type, the material to be fired is fed from one end and the completed product is taken from the opposite end. Firing is generally on a 24-hour basis the year around.

Periodic kilns are of many types, two of which are the shuttle kiln and the box kiln. These kilns are fired only as production requires with 4 to 10 hours required for single firings.

Tunnel kilns are divided into three general zones, the preheat zone, the firing zone, and the cooling section. Temperatures in this type kiln vary continuously from one end to the other, but under proper operation the temperature at any given point in the kiln will remain virtually constant. Because of these constant temperatures, ware may be advanced through the kiln at a predetermined rate. The provision for slow temperature reduction in the cooling section is necessary to prevent thermal shock damage to the ware that would result if it were suddenly cooled from peak firing temperature to room temperature.

Tunnel kilns are used in plants which have a relatively high rate of production. The major advantage of the tunnel kiln over the periodic kiln is the economy which results from high fuel efficiency. The construction of a tunnel kiln varies somewhat depending upon the desired method of moving the ware through the kiln. This type of kiln is little more than a long tunnel constructed of firebrick and supported by steel. Heat is supplied by burners at the firing zone approximately half way through the kiln. Heat from the firing zone is diverted into the preheat zone to establish the necessary build-up temperatures.

In some designs, burners are fired so the flames go directly into the firing zone and come into contact with the ware. The ware is surrounded by the products of combustion which are not injurious if combustion is properly adjusted and the fuel is sulfur-free. Most types of ware cannot stand flame impingement without damage.

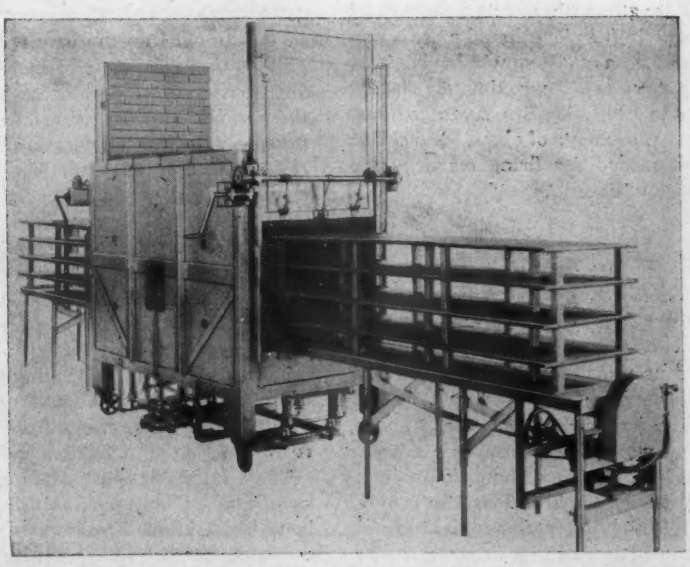
Construction used to prevent impingement, while still maintaining high heat transfer, is known as semi-muffle construction. A refractory muffle extends up the inside of the kiln but is open at the top below the arch roof. Under firing conditions, the products of combustion go up the outside of the muffle and the refractory becomes red hot and transmits heat by radiation to the ware. The combustion gases pass on over the top of the muffle and down through the ware transferring heat by convection, maintaining high efficiency.

Another advantage of having the combustion products in the kiln is the ease of adjustment of the atmosphere to either oxidizing or reducing. By having excess primary and secondary air, an oxidizing atmosphere, one where there is oxygen available for chemical reactions, can be established. By controlling the intake air so that CO is produced and there is no excess oxygen, a reducing atmosphere can be set up which will take oxygen from the product. Most ceramic artware firing requires an oxidizing atmosphere, but certain techniques require a reducing atmosphere to be successful. Combustion mixture adjustments can easily produce either requirement with gas as the fuel.

Full-Muffle Not Necessary

Full-muffle construction, which is also used, is air-tight to exclude the products of combustion. Where low quality fuels, such as coal or heavy oils, are used this type of construction is used to exclude the damaging products of combustion. With a high quality fuel, such as LPG, this type of construction is not necessary. Full-muffle construction has the disadvantage of higher initial cost, and continuously higher fuel costs because heat transfer is less efficient.

The method of moving ware through the tunnel also causes some variations in kiln construction. The two most common methods are the slab-pusher type of conveyor and the movable car-bottom kiln. In slab-pusher construction the bottom of the kiln is made of firebrick and is solid. The refractory slabs on which the



Slab-pusher shuttle kiln works like the car-bottom kiln. After ware in kiln has gone through firing cycle, it is pushed out while ware to be fired is pushed in. Both of these kilns have upshot inspirator burners.

ware is stacked ride along on top of the brick. Individual slabs are added as required at the pushing end of the kiln to give the conveyor effect. Pushing mechanisms are relatively simple with either chain drives or long spiral gears serving as the connecting link to the driving motors.

The car-bottom kiln has a series of cars which are mounted upon rails. The top of each car is constructed of firebrick and when the car is in place it constitutes the bottom of the tunnel. The pushing mechanism is usually of the chain drive type.

The car-bottom type of kiln offers the advantages of easier loading and unloading, because the cars can be moved away from the kiln area. It is also easier and faster to clear a "wreck" when ware falls while being fired in this type kiln. One of the most efficient small car-bottom kilns in use today is the Unifab kiln made by Swindell-Dressler.

There are about as many firing and burner systems as there are kiln manufacturers, but modifications of two types are most commonly encountered. One type of burner used is the inspirator (or aspirator) burner. Gas pressure requirements for this burner range from 6 in. wc up to several pounds pressure. With this burner gas aspirates air so that a combustible mixture is produced. These burners are either upshot or side-fired, depending upon the kiln construction. They range in number from four up to 20 burners or more.

A kiln approximately 60 ft in overall length with a firing section of about 12 ft in length and a cross sectional area of 2 ft sq will have a heat input range of approximately 600,000 Btu to 1.4 million Btu. Average hourly requirements of about 800,000 Btu are normal for firing ware in the range of cone 07.

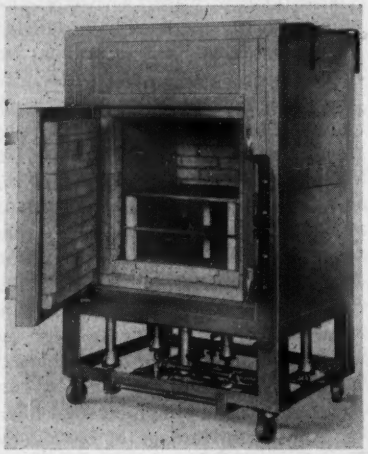
Premix System

The second most commonly used burner system is the premix system. A blower supplies the primary air and proportional mixers supply gas in proper ratio for good combustion.

The Unifab kiln mentioned above is one which uses a premix or blower-mix burner system. It has four points of firing on the kiln. This kiln is only 32 ft in overall length and has a cross-sectional area of 18½ in. by 22 in. Its car lengths are about 3½ ft. The time of the ware in the kiln is approximately six to seven hours at cone 06. The average heat input for these conditions is about 450,000 Btu per hour. A plant with one kiln of this size should be well supplied with 1000-gal. storage capacity.

One high-production plant with an LPG system has three large tunnel kilns with peak hourly requirements of approximately 4 million Btu and a 24-hour average requirement of about 1.5 million Btu. This plant's facilities include a 2900-gal. storage tank and a McKee mechanical mixer, which produces a gas-air mixture of about 1500 Btu per cu ft.

The chief difference between the tunnel and the periodic kiln is that in the tunnel kiln the material progresses through points of increasing and decreasing temperature, while in the periodic kiln the material is stationary with the temperature being raised and then lowered. There are a number of types of periodic kilns with the box kiln, constructed as its name indicates, the most simple.



Front loading box kiln is a periodic kiln, fired only as production requires with four to ten hours required for single firings. This box kiln also has upshot inspirator burner, which requires gas pressure from 6-in. wc up to several pounds.

The box kiln is made in two types, the top loader and the front loader. The top loading box kiln is often used as a hobby kiln with available sizes ranging from 1 cu ft of loading space up to a maximum of about 20 cu ft. Front loading kilns range from 5 cu ft up to 30 cu ft of loading volume.

These kilns are constructed of the same type of materials as are used in tunnel kilns. Firebrick is most common, but refractory slabs are often employed. Direct fire, semi-muffle, and full-muffle construction are all used in making periodic kilns. Burners used on box kilns are primarily of the upshot aspirator type. Front loading box kilns are equipped with this type of burner in most cases, but at least one manufacturer has used a blower-mix burner system. Both types of box kilns are used for relatively low volume production.

Shuttle Kiln

The type of periodic kiln most often found in moderate production plants is the shuttle kiln. Shuttle kilns are built in either slab-pusher type or in car-bottom construction. But instead of providing continuous movement as in the tunnel kiln, the shuttle requires that loading of green ware be done on the slabs or car at one end of the kiln while the load from the opposite end is being fired. After the ware in the kiln has gone through the firing cycle of preheat, high firing and cooling, both ends of the kiln are opened and the ware to be fired is pushed in and the completed ware is pushed out the opposite end.

Shuttle kilns are made with the same muffle arrangements as noted for the other types of kilns. Their burner systems are most often of the inspirator type, with both upshot and side firing. Some manufacturers give the option of a premix system at a higher equipment cost. Shuttle kiln sizes range from about 10 cu ft content up to 150 cu ft. Sizes above 40 cu ft have become more common in the past few years. These larger sizes have been built without muffles in most cases.

A common method of estimating fuel requirements for periodic kilns is to multiply the cubic feet content of the kiln by 22,000 Btu/hour. In some of the recent non-muffle kilns, this figure goes as high as 35,000 to 40,000 Btu/hour per cubic foot of loading space. It is somewhat difficult to estimate the fuel requirements per firing because the length of firing depends upon the concentration of the load, the type of material being fired, the design of the kiln and many other factors. In general, however, artware will fire off in a periodic kiln in from 4 to 10 hours. ■

Next month Mr. Abram will discuss the use of LPG for solution tanks for plating and cleaning.

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Association-Sponsored Group Plans Provide Security Through Low-Cost Insurance

By Harold C. Hood
Field Editor

GOODWILL and personal security fostered by group insurance plans are now available in several states to even the smallest LPG businesses. State LPG associations have taken it upon themselves to sponsor such programs in order that all of their members may be eligible for low cost life insurance and sickness and accident benefits.

Interest is spreading fast in this movement which was pioneered in September, 1952, by Arkansas. Montana followed suit in November of 1953. The year just past saw the adoption of state LPG association-sponsored plans by six more states—Pennsylvania, Missouri, Colorado, New Mexico, Alabama, and Wyoming.

Without exception, these plans have been enthusiastically accepted, and available evidence indicates that many more will be instituted within the next few months. In a recent BPN survey of state LPG associations and cooperating insurance companies, one of the questions asked was: "What has been the general reaction to the plan?"

To quote a few . . . "Wonderful," was Montana's reply. "Everyone is very happy with the cost as well as the returns from the claims." Alabama reports that ". . . it has been very well received. Since initiation of the program in August, 39 of 75 eligible dealers throughout the state have signed up. Coverage is excellent, claims are promptly handled, and premiums are nominal."

Arkansas' comment was "Excellent. As of Thanksgiving day there were 314 persons having both life insurance and hospital coverage. A total of $42,540 in claims has been paid out. . . ." Equally favorable reports have been received from the other states.

Several questionnaires bore remarks to the effect that the group insurance plans would be even more fully supported if those dealers and employes eligible for coverage more fully understood the provisions.

What is group insurance, and why are state and regional associations sponsoring it?

Group insurance, very briefly, is that type of insurance which covers a number of lives under one policy. This may include life insurance and any number of casualty coverages. And like quantity purchases of almost anything else, group insurance costs less than coverage under an individual policy.

Reasons for association sponsorship are primarily twofold. Laws governing group insurance in many states prohibit the sale of policies to firms employing less than a certain number of employes. In Pennsylvania, for example, insurance firms are not permitted to sell true group insurance to concerns hiring less than 25 people. However, trade associations may offer group insurance to their members and employes regardless of the number employed by each member firm. Hence, small companies that could not otherwise have coverage are able to do so.

A valuable industrial relations service also results. Because claim checks are delivered directly to the employe by the employer under several of the plans, a stronger tie between the two is effected. Several associations report that their plans have fostered a more friendly, closely knit relationship between the

Individuals may not be able to get insurance, but if they combine to form a group, they may be eligible under group insurance plans sponsored by associations.

Liquefied petroleum gas associations are stepping in to fill the need in the LPG industry for low cost life insurance and sickness and accident benefits. Individuals who would not otherwise be able to participate in insurance benefits may do so under the group insurance plans sponsored by associations. According to a recent survey of associations and cooperating insurance companies conducted by BPN, the results of these group plans have been excellent and interest is spreading rapidly.

BPN survey

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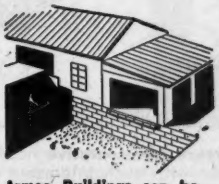

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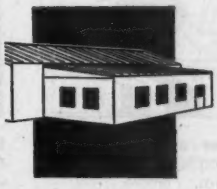

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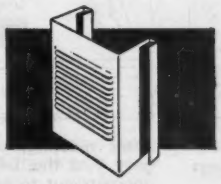

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dealer and employe which alone more than offsets the expense to the employer.

Who pays for the coverage? This varies, according to the plan and the insurance company underwriting it. Here again state law occasionally dictates the policy. Pennsylvania, for instance, requires the member-employer to pay the full cost of group insurance obtained through a trade association. Premium payments are borne by both dealer and employe in Wyoming, Missouri, Arkansas, and Montana. Optional plans adopted in Colorado and New Mexico allow for the full payment by either party or a joint sharing of the expense. Dealers in Alabama pay for the employe's insurance, and the employe pays for his dependents' coverage.

ment heads under 65 are limited to $3000, or, if over the age line, half this amount. All other employes are provided with $2000 or $1000 coverage, depending upon the age bracket in which they fall.

Alabama has a $5000, $3000, and $1000 schedule, with categories consisting of officers and owners, employes earning over $250 monthly, and employes making less than $250 per month. Montana provides a $1000 policy for all employes of participating members, as does Missouri. Trustees, managers, and executives of the latter are entitled to a $2500 policy.

One significant advantage offered in most of the above plans is their availability without a medical examination. Undoubtedly, some who have already signed up for the plans and

up so that claim checks are handed to the employe by his boss the same day the claim form is filled out, the value of which is obvious to both the financially pressed claimant and the industrial relations minded dealer.

Maximum Period

Daily hospital allowances provided range from $8 to $12. Most of the plans designate that such benefits are payable for a maximum period of 13 weeks for any one disability, except in cases of maternity disability, when benefits are limited to a maximum of six weeks.

Hospitalized policy holders will also be reimbursed for amounts from $160 to $500 for all other hospital services such as drugs, dressings, and labora-

Here's How the Group Plan Works

Association executive secretary and insurance representative hold meetings with dealers.

After meeting, insurance representative goes into the field, calls dealer, makes appointment to see him.

Insurance representative has further discussion with each interested dealer individually.

Coverage under the various policies varies greatly, but all provide protection for the employe's dependents in case of his death, and all offer accident and sickness benefits.

Fixed Amounts

Generally, there is a fixed amount of life insurance available to owners and managers, and a lesser figure offered to employes. Arkansas offers its dealers $2500 and their employes $1000. Pennsylvania's breakdown of maximum face value takes into consideration age and position in the company. Proprietors, partners, officers, and general managers under 65 years of age are provided $5000. This amount decreases to $2500 for members of the same group who have reached 65. Salesmen and depart-

are currently covered could not have passed the physical requirements to qualify them for individual policies. And upon leaving the employ of the company, policy holders may convert to regular insurance policies without an examination.

To date, Massachusetts Mutual Life Insurance Co. of Springfield has paid five death claims in connection with the Arkansas association group plan, which it underwrites. Most of the plans provide for the full "principle sum" to be paid to the policy holder in case of dismemberment or loss of sight. One-half the principle sum is payable for loss of one hand or one foot, or for the loss of sight of one eye.

Amount of accident and sickness benefits paid also varies from plan to plan. Some of the programs are set

tory services during the period of hospitalization.

Group plans specify that the above accident or sickness benefits will be payable only for off-the-job cases not covered by workmen's compensation. The plans are designed to supplement the latter, not to compete with it.

In the event that the insured requires a surgical operation resulting from an off-the-job indisposition, this expense is also borne by the insurance company, providing the surgeon's fee does not exceed the maximum surgical benefit. This figure varies from $80 to $300, depending upon the plan under which the patient is insured. Most plans state that the operation may be performed in the home, doctor's office, hospital, or elsewhere.

In addition to the above, all plans

reported in the survey contain a polio clause covering hospital expenses, doctors and nurses' fees, transportation, and cost of necessary mechanical equipment up to $5000.

Dependents of all insured members are eligible for the same accident and sickness benefits as are members. Dependents consist of the insured's spouse and all unmarried children not under 14 days or over 19 years. Some plans charge slightly extra for dependents' coverage; in others this is incuded in a basic fixed premium for the member.

Under most of the plans, medical treatment does not necessarily have to be at a hospital. Treatment may be at the home or doctor's office. Also, the insured is entitled to diagnostic X-ray or laboratory examination benefits when these examinations are made or recommended by a legally qualified physician. Here again, however, the stipulation is made that the associated accident or disease does not fall in the group covered by any workmen's compensation law.

"How Much?"

One of the first questions asked by the employer, if he is to bear the expense of the plan, or by the employe, if he has to contribute, is "how much?" Amounts of premiums vary according to the coverage afforded, and to other factors. Missouri's charges range from $3.19 per month for an employe without dependents to $10.61 for anyone in the executive classification with dependents.

In Alabama, a charge of $3.79 per month is made for each single employe earning less than $250, whereas an officer, owner, or partner costs his company $8.52 and he pays an additional $6.59 for each dependent that he desires covered. Rates in other states are comparable, all being quite reasonable considering the benefits offered.

Refund of Dividend

Some plans, such as that in force in Alabama, provide for the refund of an annual dividend to participating dealers. It is estimated that this dividend will amount to approximately 30% and will be figured on a pro-rata basis.

Collection of premiums is generally made by the association, special offices having been set up for the purpose in some headquarters. Generally, where the employe pays part of the premium, this payment is made to the employer who adds his share and sends the total to the association office. Several of the insurance companies contacted during this survey stressed the point that premiums are to be made to the association and not directly to the insurance company. By having the association handle collection of premiums and, in some cases, payment of claim checks, red tape is eliminated, there is no waiting on claim checks, no adjusters call, and there is no questioning of properly filled out claim forms.

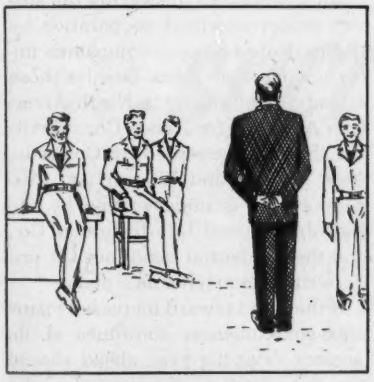
Some of the plans specify that two months premium be paid at the outset of the program. This is necessary to establish an immediate reserve. While the insured has no further legal claim to this money, he has not lost it. In case he fails to make a payment on time, this money may be used to prevent a lapse of the insurance. When the employe leaves the company with which he is insured this extra payment affords him protection for an additional 31 days.

Some arrangements require that all employes in a company be included in order for any to be covered. Others set a certain quota, percentagewise, that must be met, and one plan requires no minimum number of participants.

All of those queried have emphasized the need for close cooperation between association officers and insurance companies for the successful adoption of any group plan. R. M. Davis of the Paul Revere Life Insurance Co., underwriters of the Montana plan, states: "The association must have a central office properly equipped to administer the plan. Participation must be maintained after the initial solicitation and this is best accomplished through close supervision and active selling by association headquarters. The insurance company must have a group of trained men available to assist the association, both in the initial planning and solicitation and in subsequent operations. We feel that the success or failure of an association plan rests largely on the shoulders of the group representatives."

Details of cooperation between the Alabama association and New York Life Insurance Co. are related by David D. Stark, district group supervisor for the company: "Two full weeks were spent with the association executive secretary and the New

A late news bulletin states that the national LPGA is developing a program of group life and medical insurance which is expected to be available sometime this year. An insurance committee, chairmanned by Robert E. Maloney of Calor Gas Co., San Francisco, is studying plans submitted by several insurance companies, and is expected to select one by May. Because of the great range of such a program, extensive coverage should be possible at a nominal cost.



Dealers and employes hold meetings. Booklets giving information are passed out, questions answered.

When group is qualified, representative sends claim blanks and thank-you letter to each dealer.

GROUP INSURANCE PLAN SURVEY
BUTANE-PROPANE News

To: State Liquefied Petroleum Gas Associations

Name: Alabama L.P. Gas Dealers Association.

The following information pertains to ASSOCIATION-SPONSORED plans only.

1. Do you, at present, have an association-sponsored plan in operation? Yes
2. If not, are you considering the adoption of such a plan in the near future? _____

IF SO:

3. With which insurance company is the plan affiliated? New York Life Insurance Company
4. How long has it been in effect? August 9th, 1954
5. Who is covered under the plan? (Dependents or employee only?) Employees and their Dependents.
6. What benefits are provided? Please see the attached folder on the benefits. Also the "Notice of Participation" showing cost, and also booklets given to employees of the participating dealers.
7. Who pays for the policy (employer, employee, or both)? The Dealer pays the employee cost and the employee pays for his dependents. See attached cost sheet.
8. What do the premiums amount to? $3,600.00 approximately per month.
9. How do premiums vary with the number of dependents (if covered)? See the attached cost "participation" sheet. Its one dependent cost per class regardless of the number of dependents.
10. At what intervals are payments on premiums made? Each Month into the Insurance Fund.
11. How and by whom is the collection of premiums handled? Remitted to the Association Insurance Fund Office.
12. Must ALL employees in a company be included in order that any be covered? Yes. all Full-Time employees of the participating dealer.
13. To date, how many companies and employees have signed up for the plan? Approx. 39 dealers with approximately 400 employees.
14. What has been the general reaction to the plan by employers and employees? It has been very very well received. After the initial announcement was made to the dealers, 11 District dealer meetings were conducted with all dealers in each district present. Large signs outlined the plan, booklets were distributed and approximately 2 to 3 hours were used in conducting the meeting in each District. Then, a team of 2 salaried Group men held meetings with employees of each dealer and outlined the plan and answered any and all questions.
15. Other comments: _____

Please note in the booklet the unique "Emergency" treament payment in that it does not have to be at the out patient part of the Hospital. It may be at Home or in Doctor's Office. It took our team exactly 28 days to qual... L.P. ...ill close out the enrollment on Oct. 31, 1954. ...and with some 39 in at this date. ...plan. We beli... ...ific coopera...

Sample of the survey questionnaire sent to state LPG associations and cooperating insurance companies.

York Life group representative holding meetings throughout the state outlining the program to dealers, both member and interested nonmember. Large cardboard placards were used to outline the benefits and the costs. These signs used during the meetings gained much approval from the dealers. Dealer brochures were passed out at the meetings, together with 'notice of participation' cards and each coverage and benefit was covered separately. These meetings lasted on the average of about two to three hours, including lunch or dinner. New York Life had three salaried group representatives at each dealer meeting in order to answer questions after the regular meeting had adjourned.

"Immediately following the district dealer meeting, two group representatives went out into the hinterlands, called each dealer by phone, and made appointments to see him. After a further discussion with the dealer and additional outlining of benefits and cost, a meeting was held with the dealers and employes, either before work in the morning, or at closing time in the evening. The large benefit cardboard signs were used at these meetings, booklets and cost cards were passed to the employes, and after a presentation by the group representative, a question and answer period was held.

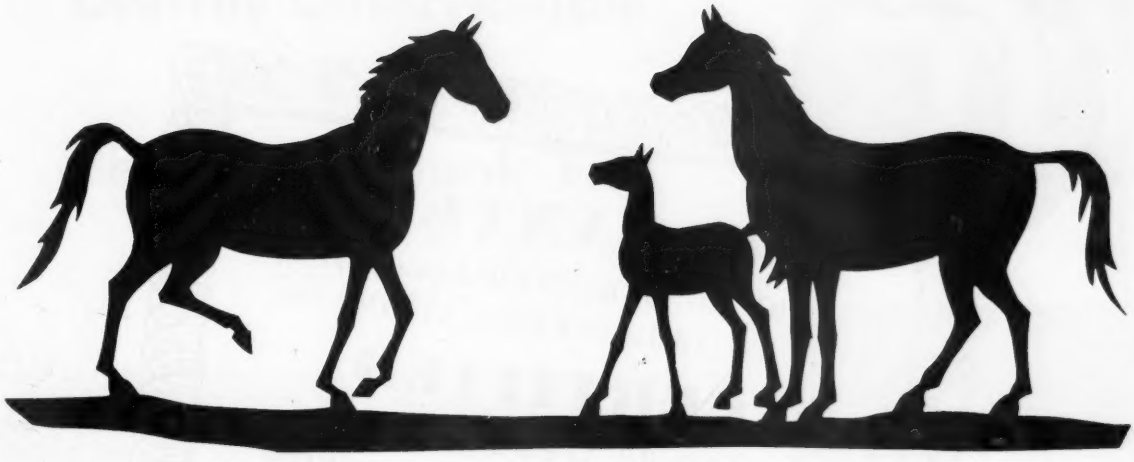
"Lastly, on qualifying a group, we immediately forwarded claim blanks to each dealer with a letter on claim procedure. A thank-you letter was also written to each dealer who came into the plan, again assuring him of the association's desire to answer any questions he might have.

"At the Alabama LPG dealers convention in Mobile on Aug. 9 we were given time on the program and again went over the benefits and the costs. This was most helpful."

All associations answering the survey report excellent cooperation on the part of insurance companies underwriting their plans. Besides those already mentioned, the North American Accident Insurance Co. submitted the plans accepted by Colorado, New Mexico, and Wyoming; Missouri's plan is underwritten by the Lincoln National Life Insurance Co., and the Prudential Insurance Co. underwrites Pennsylvania's plan.

If the trend toward increased insurance-consciousness continues at its present rate, the year ahead should see the adoption of group plans by several more states. All of the associations contacted through BPN's survey have expressed a willingness to share with other interested state groups the knowledge they have gained through their own experience. ■

Claim checks are delivered directly to employe by employer, thus strengthening the tie between the two.



...successful debut

Try and name one company other than the Sid Richardson Gasoline Co. that has introduced to the LP-Gas Industry as many plus features for the protection and benefit of its customers.

1. Worry-free supply of top quality LP-Gas in winter as well as summer.
2. Segregation of tank cars to protect quality.
3. A savings plan that lowers the cost of product through earned bonuses.
4. Assured co-operation at all times because we have no wholesale or retail outlets competing with our customers for new business or for their LP-Gas supply.

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Sid Richardson
GASOLINE CO.

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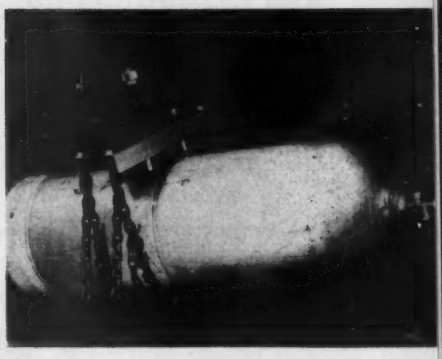
Destroy Unserviceable LPG Cylinders Before You "Junk 'Em"

By Paul W. Tucker and A. F. Dyer
Phillips Petroleum Co.
Bartlesville, Okla.

Low-cost mechanical device renders cylinders unserviceable. One end of bolt stud is pointed to make a ragged hole in the cylinder.



Device is positioned on cylinder with chains looped around and hooked over eyebolts. Upon turning the screw, the sharp point pierces the cylinder, leaving a hole difficult to repair.

AN L. P. GAS cylinder may become unserviceable for several reasons: (1) it may have developed a "pinhole" leak, (2) it may have suffered physical damage as evidenced by dents, (3) it may have suffered fire damage, or (4) it may have failed to pass retest requirements. It is well known, of course, that no attempt should be made to "field" repair ICC cylinders. Cylinders are to be repaired only by an ICC cylinder manufacturer as specified by the ICC regulations.

If the cylinder has become unfit for further service and is not returned to an ICC cylinder manufacturer for repair, then it should be *permanently* discarded. The ICC regulations contain no requirements for discarding cylinders. It is the owner's responsibility to see that they are safely disposed of.

Carting the cylinder off to the local junkyard is not sufficient. The junk dealer is apt to attempt to: (1) repair and sell it, (2) convert it to some other use (as a "water trough"), or (3) "scrap it" by flame-cutting. Any of these actions by unqualified personnel could be extremely hazardous due to gas left in the cylinder by incomplete purging. If the cylinder were "field repaired" by the junk dealer and sold, the result would be a non-specification cylinder and one more than likely unsafe to continue in service.

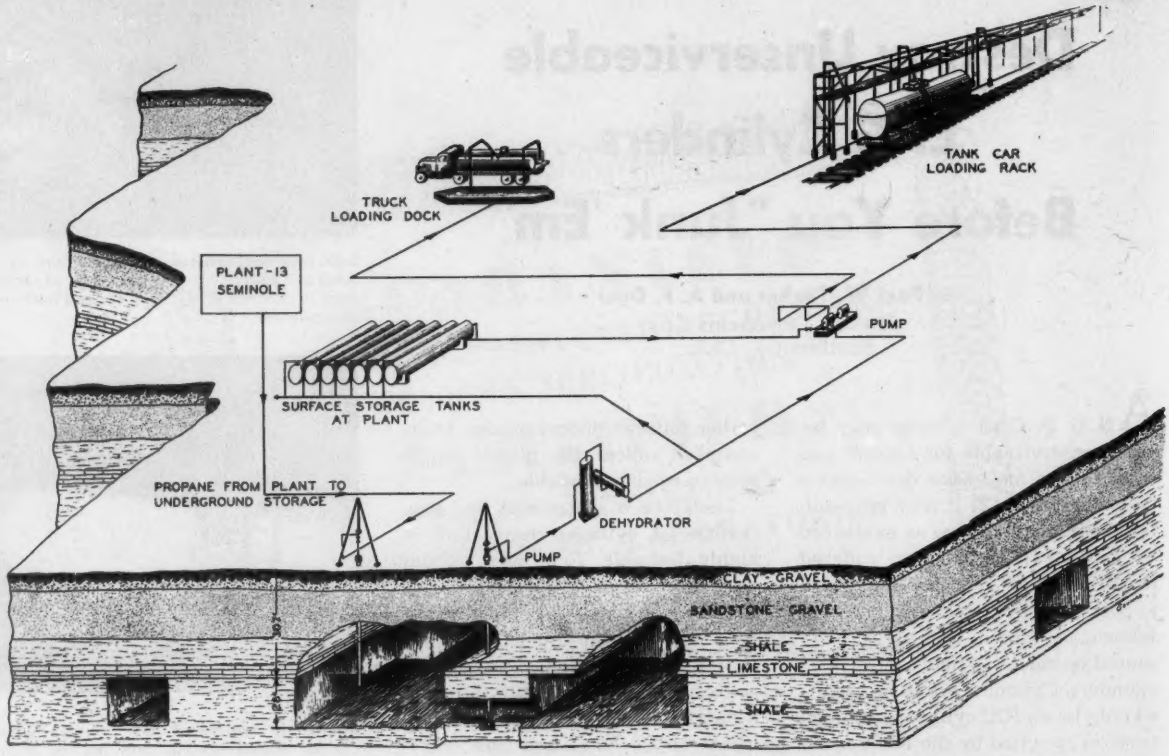
The Bureau of Explosives recommends that L. P. gas cylinders be scrapped by cutting and/or crushing the shells to such an extent that they cannot be repaired. It should be remembered that under no condition should an attempt be made to flame-cut a cylinder until it has been made "gas free" by thorough and complete purging. Such purging of cylinders is rather difficult and expensive to accomplish unless the proper equipment is readily available.

Therefore, a safe, cheap, and easy method of cylinder destruction is highly desirable. To be safe, without purging, it must be mechanical; to be cheap, it should be something at hand or easily assembled from materials at hand; and it should, of course, be easy to operate. There is a device which meets these requirements. It was fabricated from one 6-in. channel 18-in. long; four 5/16-in. eyebolts 4 in. long and 10 ft of 5/16-in. grade BBB coil chain. One end of the bolt stud was ground to a point and flame-hardened by torch heating to 1500° to 1600° F and quenching in oil. A variety of materials can be substituted, depending upon what is at hand, and the device fabricated at minimum cost.

Operation of the device is simple and easy. With the screw retracted, the device is positioned on the cylinder, the chains looped around the cylinder and hooked over the eyebolts. The screw is operated and the sharp point pierces the cylinder shell leaving a liberal torn and creased hole which would be rather difficult to repair. It is recommended that two or three such holes be made in the cylinder. If the holes are located near the bottom of the cylinder, the cylinder valve removed and the cylinder placed in an upright position, the cylinder will soon be "gas-free" through dissipation of the gas to the atmosphere. Further destruction can easily be accomplished by enlarging these holes with a large punch or wedge or by flattening the shell with a sledge hammer. However, this does not infer that the cylinder can be safely flame-cut. Before any flame-cutting operations are performed on the cylinder it should be steam or water-purged as recommended by the American Welding Society.

Remember, discarding the cylinder does not relieve you, as owner, of responsibility. You must insure that it will not create a hazard to someone else and will not again be used as a container for L. P. gas. To do this, you should always destroy unserviceable cylinders, not just "junk 'em."

For specific requirements for repairing cylinders, refer to Section 73.34 and the applicable cylinder specifications in Section 78, Subpart C, of the "Interstate Commerce Commission Regulations," as published by the Bureau of Explosives, 30 Vesey St., New York. Detailed methods of purging containers that have held combustibles are to be found in bulletin A 6.0-52, published by the American Welding Society, 33 West 39th St., New York. A very good discussion of safe methods of disposing of cylinders is contained in Pamphlet No. C-2, "Regulations For the Dispositions of Unserviceable Compressed Gas Cylinders," which is published the the Compressed Gas Association, 11 West 42nd St., New York.

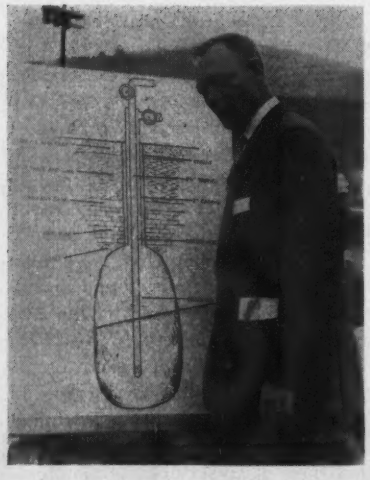


Schematic diagram of mined cavity storage plant developed by Sinclair Oil & Gas Co. at Seminole, Okla.

UNDERGROUND STORAGE

Our Insurance Against Cold Customers

By Carl Abell
Editor



S. G. Branyan, Anchor Petroleum Co., explains the procedure of washing out a salt structure cavity at dedication of Bath, N. Y., underground storage plant.

TODAY there are approximately 500 million gal. of liquefied petroleum gases in reserve storage in 140 underground caverns. Expansion of cavities now in use, and the completion of 45 additional projects now in the construction or planning stages, will boost this reserve storage capacity to approximately 700 million gal.

That sounds like a large quantity of fuel. It represents between 10 and 15% of current annual consumption. While we hope that the present supply will prevent any critical shortages brought about by prolonged winter storms or an unusually cold winter, the situation is still not ideal from the standpoint of either the producing or the marketing groups.

The producers and the marketers have two different problems which they are undertaking to answer by expansion of underground storage facilities.

The principal source of L. P. gas is natural gas coming from oil wells, with a lesser but roughly proportional amount contained in the liquid petroleum. Crude oil is produced as needed to supply the demand for gasoline and other liquid petroleum products. The associated natural gas comes out with the crude oil.

The demand for gasoline and the related liquid petroleum products is fairly constant throughout the year. The major refining equipment can only be used at peak efficiency at a

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Length	45"
Diameter	32"
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(Water capacity approx. 114 water gals.)	

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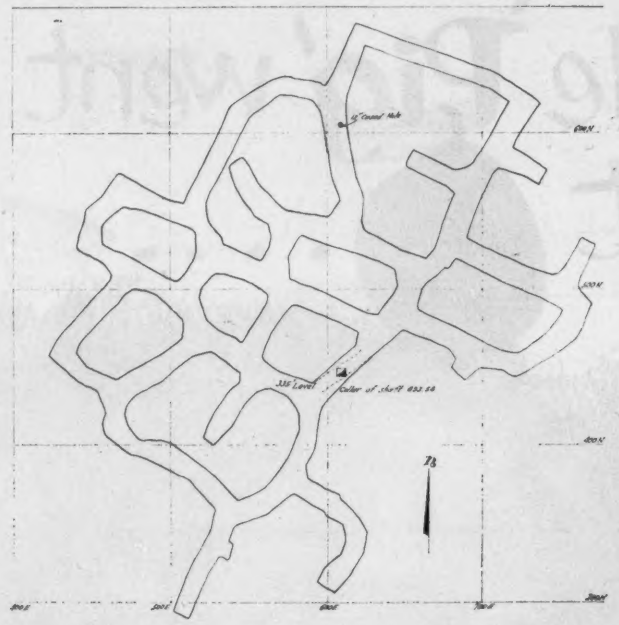


Plot of tunnels in Sinclair Oil & Gas Co. storage cavern, Seminole, Okla.

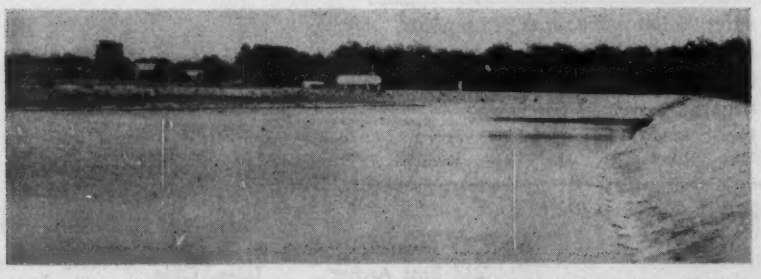
constant rate of throughput. These factors control the production of liquid crude oil and the associated natural gas at a nearly constant rate. The ingredients of liquefied petroleum gas come out with the crude oil and the natural gas at the same nearly constant rate, and they must either be consumed, stored, or wasted.

An Imbalance

Demand for L. P. gas is seasonal—up in winter and down in summer. But, for reasons of economy, production must go on at a uniform rate throughout the year. The refiners must have a means of storing summer surpluses to provide extra fuel for winter demand, or install extra production equipment to meet the winter demand and either produce a larger summer surplus or undergo a partial close-down of facilities and make a less profitable use of the surplus ingredients. Neither of the latter alternatives is economically attractive.

The more logical answer is steady utilization of sufficient production facilities to meet the year's requirements, storing the summer surplus to meet the extra requirements for winter heating.

The marketing groups face this problem from a somewhat different standpoint. Their main concern is to have adequate fuel to meet the peak winter demand. Consumption reaches very sharp peaks during a two or three month period—longer and sharper peaks in the populous northern industrial states which offer the higher demands. In order to avoid excessive investment in their own steel storage plants, the retail fuel distributors need a flexible supply, immediately available as needed.



Brine resulting from washing out a salt cavity is retained for displacement of fuel in operation of salt structure storage.

BPN staff report

Ideal Answers

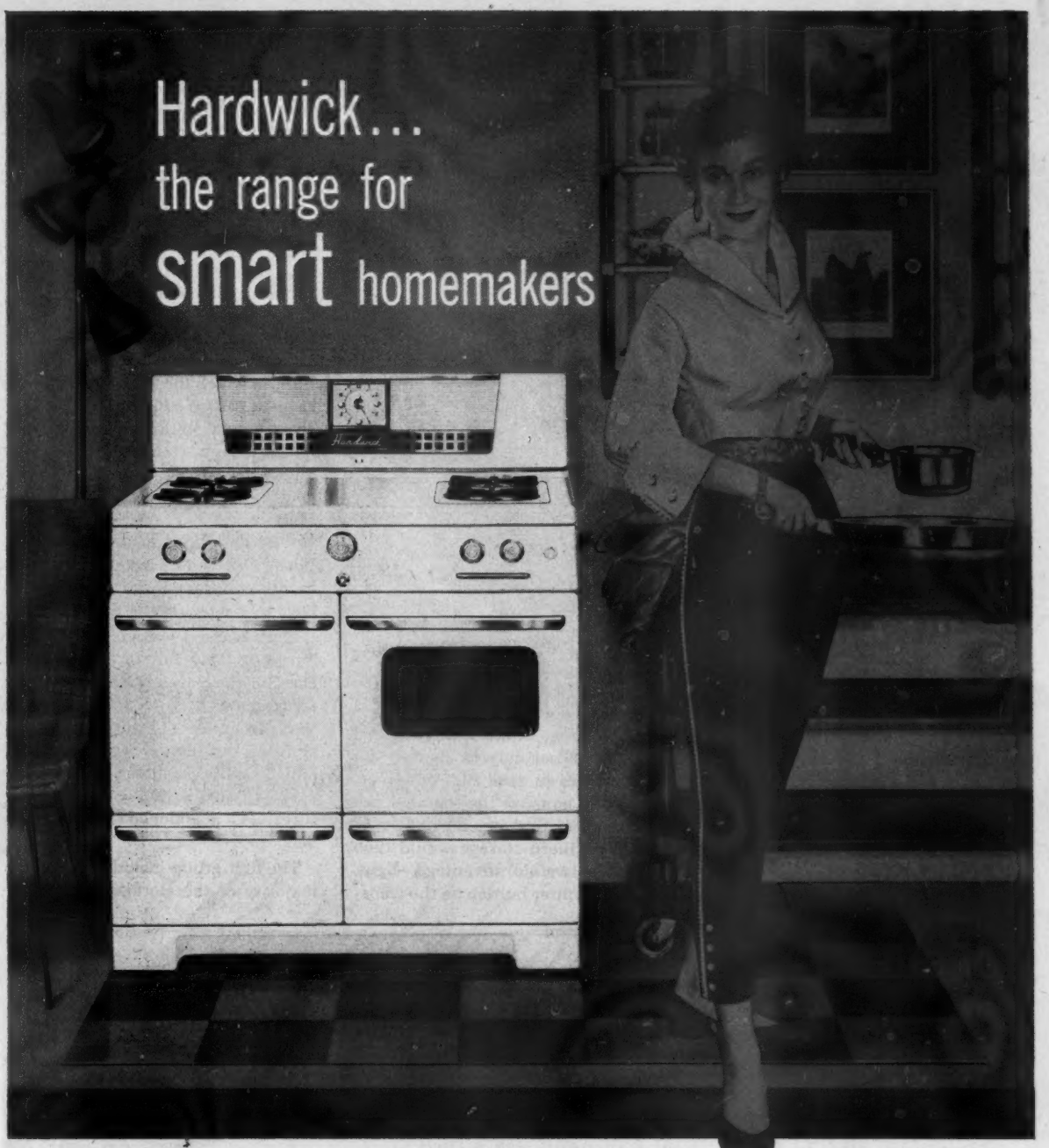
While this outline of the situation is admittedly oversimplified, it gives the basic conceptions on which the underground storage facilities of the industry are being developed. These conceptions point to the ideal answers in relation to balanced production and unbalanced consumption. Geography, geology, and transportation problems necessitate certain compromises, which set the limitations on how close to the ideal solution we may approach.

They also re-emphasize what has been pointed out many times in the past—that reserve storage in large amounts is only a cushion, and that the ultimate solution to the entire problem can better be provided by balanced consumption. Since the ability to balance consumption completely is lacking, the logical alternative is the development of adequate storage facilities at the points of consumption to permit balanced deliveries.

Need for Cushions

Obviously, the closer we can approach to balanced consumption and delivery, the less need the industry will have for extensive intermediate storage. But we can never get away from the need for adequate cushions of reserve storage at strategic locations, to provide an uninterrupted supply to the customers in case a major disaster should inactivate any essential service in the production and distribution chains.

The underground storage program as developed to date, while a great credit to the industry, lacks some of the essentials to make it of the utmost usefulness, particularly to the marketing group. Too much of the storage is concentrated in the south-



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Your Hardwick line, always your *volume* line, always the gas ranges that give the World's top cooking performance, now bid to make your selling job even easier. For from the drawing boards of America's top designers has come a series of new high-fashion designs to make your Hardwick line for 1955 the smartest, most glamorous gas ranges ever produced. Your 1955 Hardwick Gas Ranges will add distinction to your selling floor, and to the kitchens of your customers. Order in depth for your biggest selling season in history.

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One of the tunnels in Sinclair storage cavern, showing method of preventing walls from sloughing off.

western states, adjacent to the major production. Too little has been provided near the major northern marketing areas where the problem of winter supply is most acute.

The situation is slowly working toward a better balance. At the close of the 1952-53 winter season, 96% of the underground storage was concentrated in the five states of Texas, New Mexico, Mississippi, Louisiana, and Kansas. A year later this figure had dropped to 88%. Current reports indicate still further developments of storage facilities in the northern areas.

Transportation Problem

The greatest weakness of concentrating the reserve storage at points remote from the areas of greatest need is the problems of transportation. At the season of peak requirements the movement from the southern storage to the northern marketing area must come at the time when tank car facilities are most severely taxed to meet the normal winter movement of currently produced fuel, and when disruption of transportation by storm is most likely to coincide with the most severe demand of the season.

Further development of underground storage at the marketing end is desirable not only to shorten the supply lines in case of emergency, but also to equalize the seasonal use of tank cars. Summer movement of fuel to northern storage would thus present a twofold advantage—lightening the winter burden on the transportation system, and providing summer revenue service for some of the tank cars that would otherwise be sitting on sidings during the season when fuel consumption is lowest and transportation easiest and most economical. From every standpoint it is advantageous to concentrate further development of underground storage at locations within quick delivery radius of the points of need.

Structure Unavailable

Unfortunately, most of these critical areas do not have geological structures in which the lowest cost storage caverns can be constructed. In some areas structures in which satisfactory caverns can be constructed and operated at reasonable cost have been difficult to find, and may not even exist. Most of the locations where storage can be developed at lowest cost are in the Gulf states, where the majority of the underground projects have been developed in the past.

Underground storage facilities produced to date fall in four general classifications according to geological structure and method of construction. They are (1) washed-out caverns in salt domes or layers; (2) mined cavities in shale or other dense rock; (3) depleted oil or gas structures; (4) abandoned mines or tunnels.

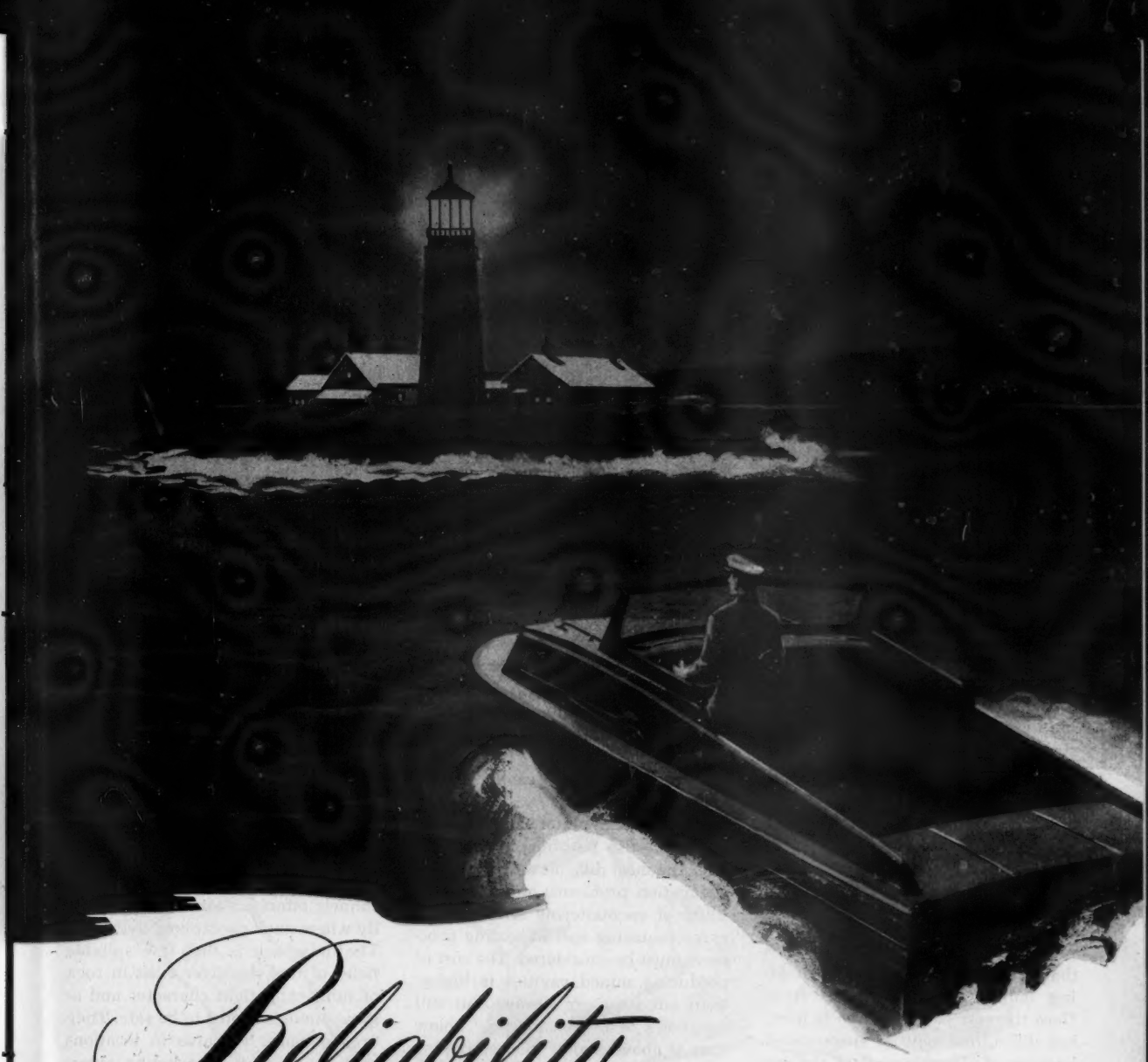
The first group includes by far the majority of the storage projects de-

TABLE 1

Summary of Underground Storage

State	Type Cavity	Capacity, Bbl Present	Capacity, Bbl Ultimate or Proposed
California	Water sand	44,000	100,000
Illinois	Mined shale	510,000	510,000
Kansas	Salt red	533,000	812,000
Louisiana	Salt dome	622,000	761,000
Michigan	Salt bed	150,000	250,000
Mississippi	Salt dome	652,000	1,029,000
Missouri	Mined limestone	25,000	25,000
New Mexico	Salt bed	460,000	679,000
New York	Salt bed	125,000	125,000
Ohio	Mined rock	0	60,000
Oklahoma	Salt bed	16,000	16,000
	Mined shale	110,000	110,000
Texas	Salt dome	2,042,000	3,329,000
	Salt bed	3,892,000	6,677,000
	Permeable formation*	2,455,000	2,544,000
	Mined shale	50,000	50,000
West Virginia	Abandoned tunnel	0	200,000
Wisconsin	Mined sandstone	0	70,000
Total		11,686,000	17,347,000

*Actual total capacity is indeterminate; volumes shown represent capacity in use. September, 1954, Petroleum Engineer.



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OFFERS YOU . . .

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- **Ample Storage** to meet your every need
- **Dependable Production** to meet seasonal demands
- **Prompt Shipment** Tank car fleet assures delivery

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veloped so far. They are the most economical type to produce, because the necessary cavities can be washed out by drilling into the structure and circulating water into and out of the hole. After the cavity reaches the required dimensions, the means of injecting and removing the fuel is constructed to utilize the same opening through which the salt was removed. The entire operation is relatively simple and inexpensive, costing less than one-tenth as much as would be required for aboveground storage in steel containers.

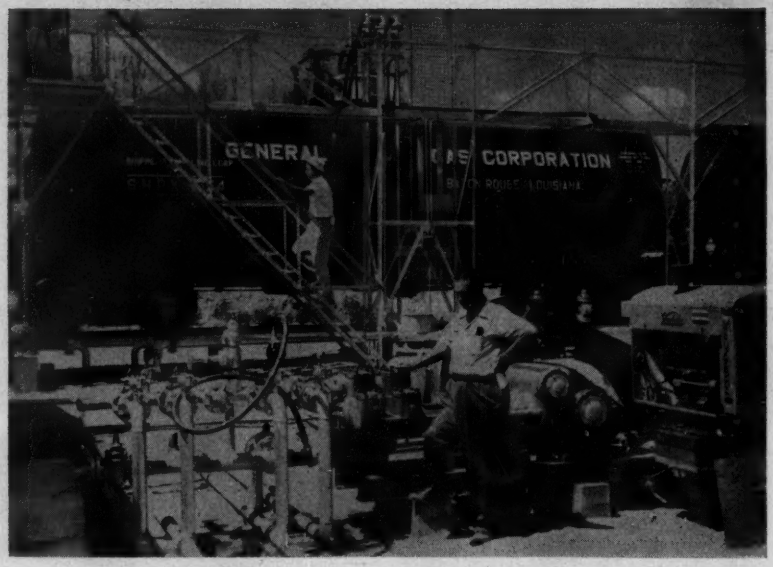
Many Salt Domes

Salt domes are of rather frequent occurrence in a broad band extending from about 80 miles north of Corpus Christi in Texas over into Mississippi, and taking in the southwestern tip of Alabama. Salt beds of favorable nature and dimensions underlie central Kansas, western Oklahoma, and a considerable area of west Texas and southeastern New Mexico. A similar structure is found beneath most of the lower peninsula of Michigan. A third bed of considerable extent and desirable thickness is located under parts of Ohio, Pennsylvania, West Virginia, and New York.

Where mined cavities must be produced, the most favorable areas are those in which shales and other impervious rocks occur in deep beds that have not been fractured by folding, faulting, or thermal stresses. Here the cost of excavation is least, but difficulties may be encountered because of sloughing off of the cut surfaces, localized permeability due to conditions not disclosed in the core drilling. These conditions can be overcome, but at added expense.

Similarly, sandstone structures of moderate permeability can be sealed by means already developed in experimental small-scale test cavities, although this practice has not yet been undertaken in a cavity of storage proportions.

Granitic and plutonic rock structures can also be utilized, but these offer the most difficult and expensive excavation problems, and the possibility of encountering seams or fissures requiring special sealing processes must be considered. The cost of producing mined cavities is higher than salt structure storage, but still appears to be considerably below that of aboveground steel storage.



Pumping equipment and unloading rack at one of the General Gas Co. storage plants in Louisiana. Fuel is being received for injection into cavern.

Poor Recovery

Storage in depleted oil or gas structures has been carried on in Texas and California. While construction cost is relatively low since no excavation is necessary, there are other factors which may make such storage relatively expensive.

Although some such storage projects have been quite successful, others have been failures because of recovery of only a low percentage of the fuel sent down into storage. Recovery is usually much slower than from the cavern type of storage, and if oil residues remain in the formation some of these come back up with the recovered L. P. gas, which requires reprocessing before the gas is marketable. It seems probable that the long-run economy of this type of storage will prove less advantageous than cavern storage, but the possibility of satisfactory installations of this kind does exist in selected locations in any gas and oil producing area.

Too Few Holes

The use of abandoned mines and tunnels offers an attractive possibility where such cavities are available. The drawback is that few suitable holes of this character exist in rock of sufficiently tight character and at great enough depths to be safe. They are particularly scarce in locations adjacent to major marketing areas, and unless they are so situated there is likely to be a heavy penalty in excess transportation costs.

It does not appear that this type of storage will become a major factor in the overall picture, although one such project in an abandoned railroad tunnel in Virginia is reported to be in satisfactory use, and other locations are known to be under consideration.

Installation of storage caverns of any type is an expensive proposition, particularly if hard-rock mining methods must be used. Investment-wise, it is too big an undertaking for the average individual retail marketer, although a few large distributors have been able to install their own underground facilities. Subur-

Continued ➤

TABLE 2

Approximate Capital Investment Per Bbl of Types of Propane Storage, With Minimum Handling Facilities

Aboveground storage, steel	$20.00 to $25.00
Washed out cavities in salt	.50 to 2.00
Large mined cavities	2.50 to 8.00
Small mined cavities	4.00 to 10.00
Abandoned tunnels and mines	Not available

Want to Know some *MAGIC WORDS?*

The magic words used
To bring forth this lass
Aren't nearly as potent as
"send me TEXGAS!"

There are no two ways about it — the Maharaja, with his magic words, is performing quite a trick.

And there are no two ways about it when you call Texas Natural and order *Propane* or *Butane*. The three magic words, *"send me TEXGAS"*, are your key to practically an unlimited supply of top quality LPG. *Since LP-Gas is not a sideline with Texas Natural,* your order gets immediate handling always. We've built our plants and storage facilities to anticipate your needs — regardless of the season. Our fleet of TEXGAS tank cars is one of the largest in the industry. All in all, we're geared to serve you better than you have ever been served before.

So, Winter or Summer, Spring or Fall, for the kind of service you want . . . and for the contract you need — call, wire or write Texas Natural.

PROPANE • BUTANE • NATURAL GASOLINE—Phone 3-0123 Wire TU 190

NOW... "HIT THE ROAD"

WITH THE NEW

REGO®

7555 SERIES MULTIVALVE® ASSEMBLIES

There's no supply interruption . . . no loss of time or money . . . when you fill your customers' ICC cylinders right at their installations. The new REGO 7555 Series Multivalve Assemblies (relief valve capacity ample for ICC cylinders containing 150 lbs. or less of LP Gas) see to that. Metered gas systems are more profitable with these valves, and they help you reduce your cylinder stock. For more profitable on-the-premises gas filling, "hit the road" with your tank truck and REGO Multivalve Assemblies!

REGO LP GAS EQUIPMENT IS STOCKED BY LEADING DISTRIBUTORS THROUGHOUT THE WORLD . . . OR WRITE DIRECT TO

The BASTIAN-BLESSING Company

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PIONEER AND LEADER IN THE DESIGN AND MANUFACTURE OF PRECISION EQUIPMENT FOR USING AND CONTROLLING LP GASES

...FILL 100 POUND CYLINDERS!

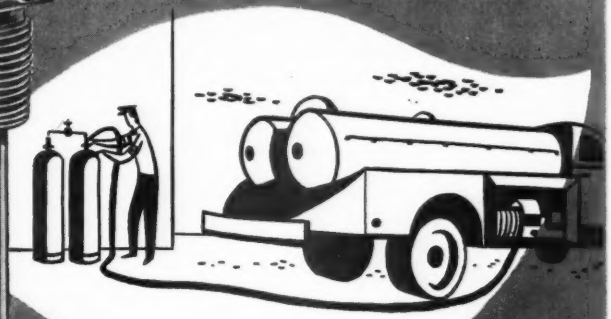
6 MODELS AVAILABLE

3 WITHOUT FUSE PLUG

7555—1¼" Acme filler connection
7555R—1¼" Acme filler connection
7555W—POL filler connection

3 WITH FUSE PLUG

7555P—1¼" Acme filler connection
7555RP—1¼" Acme filler connection
7555WP—POL filler connection



SPECIFICATIONS

- Forged brass body.
- ¾" male NPT cylinder connection and POL service outlet.
- Rapid filling capacity.
- Liquid carried through baffle tube into cylinder—no interruption of gas service.
- Choice of filler connections.
- Time-tested RegO Shut-Off and Relief Valve design.
- Fixed Liquid Level Gauge with tube and liquid deflector.
- Compact design . . . valve protrudes only approx. 5" above cylinder spud.

REGO and Multivalve are registered trade marks of The Bastian-Blessing Company

ban Propane Gas Corp. has developed salt-bed storage facilities in western New York state, and General Gas Corp. has installed several in salt domes in Louisiana and Mississippi.

Distributor Storage

The Bottled Gas Corp. of Virginia operates the storage previously mentioned in the abandoned railway tunnel. The Freestone Underground Storage Corp., near Fairfield, Texas, is jointly owned by officers of three retail distributing companies in that vicinity. Sacra Bros., New Mexico, has at least one salt-bed storage system in service, and more under development.

Other than these, the projects completed or under construction appear to have been put in by L. P. gas producers, with the exception of a very few operated for their own service by major chemical companies.

Regardless of who operates these storage facilities, there will be items of cost added to the price of the product stored. These extra charges must include retirement of investment, interest and taxes, cost of putting the gas into the ground and bringing it back out, maintenance cost of the equipment involved, and any extra transportation charges that may be incurred. These extra costs will vary with location, type of cavern, and size of storage.

Some producers are pricing fuel to get a return of 2 cents per gal. on stored fuel. This rate does not appear to be exorbitant, and is probably not enough to attract outside capital in large amounts for the development of independent storage facilities.

In view of these conditions it seems probable that most of the additional underground storage at the marketing end must be put in by organizations within the LPG industry, and that the producers will be the major participants in the program. Such projects are already developed or under development by Phillips, Warren, Cities Service, Skelly, Sun, Anchor, and Standard of Ohio in the states of Illinois, Michigan, Ohio, and New York.

Balanced Consumption

All parties involved seem to be in agreement that underground storage is a necessary cushion to take care of emergency requirements in the chain of manufacturing and distribution, but that it should not be our major dependence in coordinating an unbalanced consumption and a balanced production. There is a limit to which storage of surpluses can enter into this picture and remain economically feasible.

The ideal answer to the problem is still balanced consumption, and where this is not possible, the creation of consumer storage facilities which will permit balanced deliveries. The consumer must in the final analysis pay the cost of whatever facilities and programs are necessary to assure him a year-round supply of fuel when and as he needs it. There is no other location for surplus storage that fits his needs so completely as his own back yard.

* * *

Phillips Petroleum Co., in its latest annual report, states, as follows:

The L. P. gas industry in 1954 continued the rapid development of underground storage facilities. The 458 million gallons of underground storage in use at the end of 1954 exceeded storage in use a year earlier by 212 million gallons, a gain of approximately 86%. At the year's end an additional 250 million gallons of storage was under construction or proposed. (See Table 3.)

Most of the storage developed and proposed is situated in salt formations in gas producing areas. The industry has taken advantage of lower construction costs for storage facilities in the vast Permian salt beds, extending from central Kansas through Oklahoma and Texas Panhandles, across west Texas and southern New Mexico and in the numerous salt domes along the Gulf coast in Southern Louisiana and Texas. Some use has been made of storage space in sand formations underlying many producing facilities. The underground storage in use east of the Mississippi river and generally north of the Mason-Dixon line totals approximately 34 million gallons. In recent months construction has started and plans are being made for additional underground storage at refineries and terminals along the east coast and in the eastern part of the United States. The trend toward underground storage of L. P. gas in the Northeast has been slow in developing but may be expected to expand during the coming year. However, the total underground storage foreseen for this important distributing area is less than 10% of the total underground storage. ■

TABLE 3

Underground Storage For L. P. Gas

	Jan. 1, 1954 Million Gallons	Jan. 1, 1955 Million Gallons
Storage in use		
Caverns in salt formations	212.1	383.1
Mined caverns	16.9	27.8
*Storage in sand formations	17.0	47.5
Total storage in use	246.0	458.4
Storage under construction		
Caverns in salt formations	93.9	132.9
Mined caverns	15.8	7.6
Total storage under construction	109.7	140.5
New storage proposed		
Caverns in salt formations	99.7	92.6
Mined caverns	20.2	16.8
Total new storage proposed	119.9	109.4
Total storage (in use, under construction and presently proposed)		
Caverns in salt formations	405.7	608.6
Mined storage	52.9	52.2
*Storage in sand formations	17.0	47.5
Total	475.6	708.3

*The capacities of storage in sand formations are reported as the maximum volume used thus far, as the ultimate capacity is unknown.

Courtesy Phillips Petroleum Co., Bartlesville, Okla.

Through our **GREATER VALUE FOR YOUR MONEY** *Direct Sales Policy*

Sales costs are usually a greater part of the price paid for equipment than manufacturing costs. Streamlining the sale by eliminating commissions, etc., saves much expense and gives you greater value without "cheapening the product." That is why we have adopted the direct sales policy in the U. S. This saving also applies to repairs. Through our exchange plan you get expert factory repairs at lowest cost without loss of time from service, and without need for a repairman.

Another real advantage of this policy is that you have direct contact with the manufacturer who is the person most interested in giving you fast service and fair treatment.

SMITH
PRECISION PRODUCTS CO.

1135 MISSION STREET, SOUTH PASADENA, CALIFORNIA

Telephone PYramid 1-2293 or PYramid 1-2691

TC-1044 TRUCK PUMP:

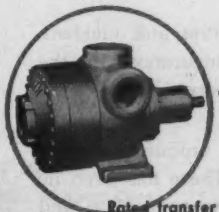
Rated transfer capacity 20 gpm at 500 rpm, directly connected to power take-off. For 1½" piping. Weight 40 lbs.

TC-1044H TRUCK PUMP:

Rated transfer capacity 35 gpm at 900 rpm, directly connected to power take-off. For 2" piping. Weight 40 lbs.

TC-2 TRUCK PUMP:

Rated transfer capacity 50 gpm at 500 rpm, directly connected to power take-off. For 2" or 2½" piping. Weight 100 lbs.



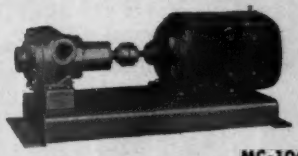
TC-3 TRUCK PUMP:

Rated transfer capacity 100 gpm at 500 rpm, directly connected to power take-off. For 3" piping. Weight 130 lbs.

BULK PLANT MODELS

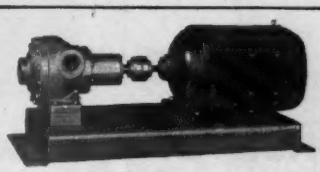
MC-1:

Rated transfer capacity 5 gpm wth ½ hp 1800 rpm motor and 10 gpm with ¾ hp 3600 rpm motor. For 1" piping.



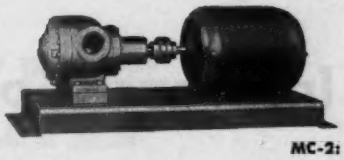
MC-1044:

Rated transfer capacity 20 gpm with 1½ or 2 hp motor. For 1½" piping.



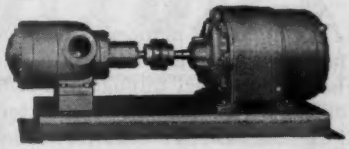
MC-1044H:

Rated transfer capacity 35 gpm with 2 or 3 hp motor. For 2" piping.



MC-2:

Rated transfer capacity 50 gpm with 3 or 5 hp motor. For 2" or 2½" piping.



MC-3:

Rated transfer capacity 100 gpm with 5 or 7½ hp motor. For 3" piping.

MC-4:

Rated transfer capacity 150 gpm with 7½ or 10 hp motor. For 4" piping.

BPN staff report

An L. P. gas training school is held in Albuquerque, N. M., by Truman Adkins.

L. E. Davis dictates the results of an on-the-spot safety inspection. Records will be airmailed to home office engineering department.

Insurance Company Helps Dealers Lower Insurance Costs

The Pan American Fire and Casualty Co. and the Alabama LPGA have helped dealers lower insurance costs with an accident prevention program, which includes plant inspections and safety training.

ALTHOUGH in the past the liquefied petroleum gas dealers in Alabama have been through the same difficulties in obtaining satisfactory insurance as have the dealers in other parts of the country, they now feel that their insurance problems are well under control.

A large part of the reason for this is that they have accepted their own responsibility for upgrading the safety phases of their operations, and of the industry, and have teamed up in an accident prevention program including plant inspections and safety training.

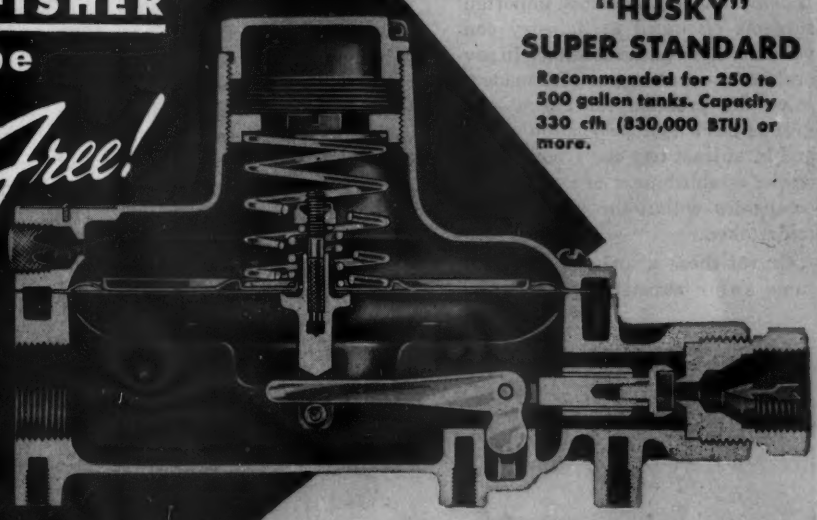
This program was sponsored by the Alabama LP Gas Association, and conducted by the Pan American Fire & Casualty Co. with the association. More than 90% of the dealers in the state are actively participating in the program, and, incidentally, buying their insurance from the company that cooperated to make the program possible.

The program is unique in a number of respects. There has been no "deal" between the association and the insurance company. The association does not handle insurance problems or negotiations for members. No member is required to buy insurance through the association-sponsored program.

All of the insurance is written through local agencies at the manual rates approved by the state insurance commission. Premium credits are extended to operators whose records justify such consideration.

Any other insurance company licensed in the state can sell to any dealer on the same basis, but Pan American gets the business. It seems likely that this situation will continue, because Pan American is the only insurance company in America that is organized and staffed to handle an insurance program on the basis that has received such approval by the Alabama dealers.

SPECIFY FISHER
. . . and be
Trouble Free!



TYPE
932
"HUSKY"
SUPER STANDARD
Recommended for 250 to 500 gallon tanks. Capacity 330 cfh (330,000 BTU) or more.

FISHER®
TANK REGULATORS

Select the *right size* regulator for your customer's requirements—*be sure* regulator capacity is adequate for the job. Fisher tank regulators are of heavy rugged construction with better valve leverage. Larger orifice and diaphragm sizes contribute to their recognized anti-freeze characteristics. Fisher regulators are UL listed.

Insist on Fisher Regulators on every tank for trouble-free service.

Write for complete data.

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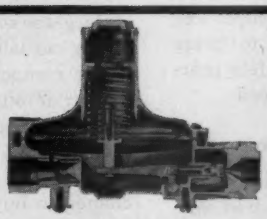
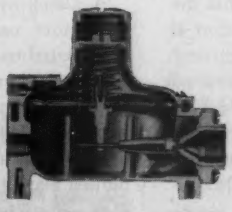


TYPE 722V
"WORKHORSE"
SUPER DE LUXE
Recommended for 500 and 1,000 gallon tanks. Capacity 680 cfh (1,700,000 BTU) or more.



TYPE 922
ECONOMY
Recommended for tank sizes of 250 gallons or less. Capacity 190 cfh (480,000 BTU) or more.

LEADS THE INDUSTRY IN RESEARCH FOR BETTER GAS PRESSURE CONTROL

FISHER Since 1880

Before the Alabama program was developed the dealers in that state had faced the same insurance problems that had plagued LPG dealers everywhere. Adequate insurance coverage had been difficult to get, rates were high, and many operators were unable to renew their contracts when they expired.

The dealers' insurance problems became one of the most important subjects discussed at industry conventions all over the country. In several instances attempts were made to solve the problem for entire state groups through association action, and in at least two cases such action as the establishment of insurance companies within the industry was undertaken.

Out of these association activities came some substantial gains. The greatest of these was the awakening of the industry to the fact that insurance rates eventually reflect loss experience, and the way to bring rates down is to improve safety practices so losses will be reduced.

Safety Training Programs

Out of this understanding came numerous association-sponsored safety training programs. With this development it seems probable that if any big national insurance company had chosen to go into a specialized LPG insurance program based on safety engineering of facilities and safety training of employes, that company could have swept the field.

No big insurance company made the move. Many of the largest casualty companies either declined to accept an LPG risk, or took only a limited number as special favors to agencies that were doing outstanding jobs in other lines which the companies regarded as more desirable.

To Fill a Need

Into this picture in 1947 came Pan American Fire & Casualty Co., a new company organized in Houston as an outgrowth of a thriving insurance organization dating from 1939, and headed by Troupe E. Gammage Sr. and his sons, Earl and Earnest. It was not their original intention to specialize in L. P. gas insurance. They intended merely to ride the wave of industrial development that was sweeping that part of the South. The LPG situation was brought to their attention by personal friends who operated LPG businesses, and who had experienced difficulty in securing insurance coverage.

Here was something for an aspiring young casualty company to look at. While competition for the ordinary industrial business was murderous, the LPG field was inadequately served, with prospective customers all over the country looking for a chance to buy.

A check-up of some of the larger and more carefully managed L. P. gas distributing companies showed that they were desirable risks, safer than a great many of the service stations and petroleum distribution accounts that the big insurance companies accepted as routine risks.

It seemed logical that the safety standards of the LPG distributors who did not have such good records could be improved to make them just as desirable as the small group with the cleanest records from the insurance standpoint. The weak link in the chain was the lack of safety "know-how" by these weaker operators.

Pan American officials realized that developing volume of business in any line would involve a great deal of hard work and expense. Going after the conventional industrial types of business, even if results were successful, would keep them in direct competition with larger and more powerful companies, whereas similar expenditures of effort and money could be expected to place them in a dominant position as specialists in L. P. gas insurance. Older and more experienced insurance companies had pointed out the necessity for competent safety supervision and instruction of industry people as the reason why they could not go extensively into LPG insurance.

Pan American officials decided to develop the necessary staff and use these customer services as the means of securing LPG business in volume, at the same time up-grading the insured operations to make them more desirable insurance risks. This plan has been received with enthusiasm by the operators in the 13 states into which the company has expanded.

Preliminary Inspection

A careful engineering inspection of the plant, facilities, and operating procedures of the applicant is a necessary preliminary before a policy will be issued and the customer's rate established. The inspector's report includes any items discovered which

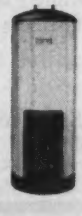
The insurance applicant's safety training program is carefully scrutinized and a safety inspection is held at the plant.

TRADITION IS A CODE, TOO!

A family-owned business which has been making pressure vessels for over a century can't think of building anything but the best!

There's everything in Trageser LP-Gas cylinders that dealers tell us they need. Uniform-gage walls of high-tensile alloy steel, brazed for maximum joint-strength, assure light weight, long wear . . . keep your cylinder investment low. The patented Lifemark Data Plate (on 100-pound and larger cylinders) is made of copper . . . permanent, non-corroding, *always* easily read. The shot-blasted surface plus a red oxide ground coat provides a finish perfect for your own painting. Skirts are strong and rigidly secured.

Send for: (1) A price-list and catalog with complete specifications of the 20- to 420-pound Trageser LP-Gas Cylinders, (2) quotations on Trageser's ASME Storage Tanks, 250 to 500 gallons, and (3) price-list and catalog of Trageser's famous "Copper Core" automatic gas water heater.



This is the fast-selling Trageser "Copper Core" automatic gas water heater. Tank of pure copper with 10-year complete replacement guaranty. Send for full information.

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Guarantee

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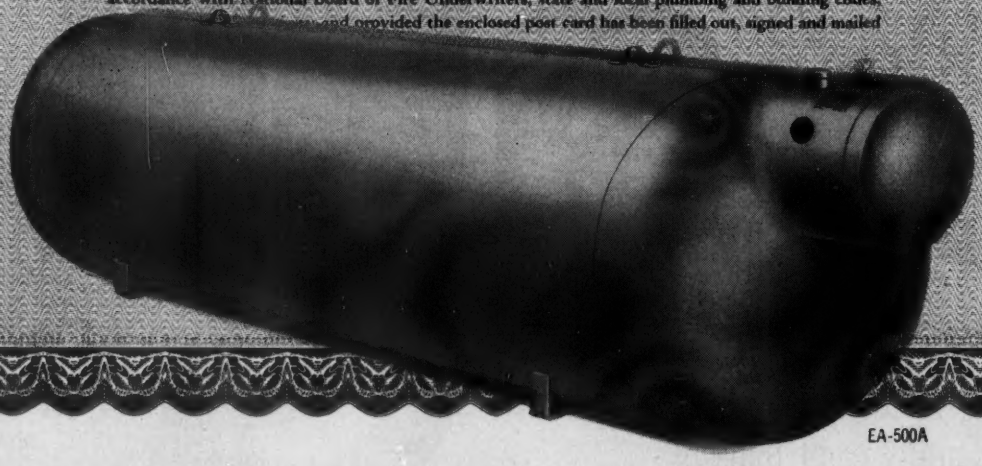
THE SCAIFE FUELPACK LIQUEFIED GAS SYSTEM

Scaife Company guarantees to the original purchaser of the Scaife Liquefied Gas System which bears the serial number below that Scaife Company will replace or at its option repair any part of the System which within one year from the date of installation proves to be defective in material or workmanship under normal use for storage of liquefied gas, normal service and pressure not exceeding the ratings shown on the name plate attached to the tank, provided the System has been installed in accordance with National Board of Fire Underwriters, state and local plumbing and building codes, [illegible] and provided the enclosed post card has been filled out, signed and mailed



EA-500A

Where else do you get protection like this?

A WRITTEN GUARANTEE BACKS EVERY SCAIFE FUELPACK SYSTEM

Now you can offer your customers an above-ground system that's backed by a guarantee.

Scaife Company, always a leader in the pressure vessel field, stands behind the quality of every Scaife FueLPack System with an assurance of dependability that's written out in black and white.

HERE'S HOW SCAIFE CAN DO IT

- Every unit is manufactured to the ASME code and carries the Underwriters approved label.
- Every unit is produced on Scaife's new production line by up-to-date equipment and modern techniques.
- Every unit is subject to rigid quality control including hydrostatic and air tests.
- Product dependability is assured through thorough checking by qualified independent inspectors.

Why not use the Scaife guarantee to make your sales job easier. Show your customers that Scaife provides written assurance of the dependability of their FueLPack System.

Top Mounted TA-285A
TA-500A
End Mounted EA-500A
EA-1000A

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MAKERS OF PRESSURE VESSELS AND DRAWN SHAPES

require immediate correction in the interest of safety, together with recommendations for improvements in either construction, equipment, or procedures which may be needed to protect against possible hazards in the more remote future.

The applicant's safety training program is carefully scrutinized, if there is such a program in operation. If not, an active safety program is recommended, and the inspector collaborates with the plant management in outlining this activity. The BUTANE-PROPANE *News* safety training program is highly recommended for the use of all operators.

The inspector's report is dictated on the spot, by means of a portable dictating machine that operates off his car battery, and the record is airmailed to the head office whenever such speed is indicated. This department is under the supervision of Lloyd E. Davis, a former LPG distributor and later an inspector for the L. P. gas department of the Texas railroad commission.

An educational department was also established to work with local groups of LPG dealers in training their staffs along safety lines. This is headed by Truman Adkins, who formerly carried on safety training programs conducted jointly by the University of Texas and the Texas Butane Dealers Association.

Service to Industry

Association sponsorship of these safety schools is sought. The classes are open to all LPG personnel in the area, without regard to whether the companies represented are members of the association or customers of Pan American. The safety training activity is a service to the industry, purposely put on the broadest possible base because any accident within the industry affects the entire industry adversely. Conducting these schools costs money, and the extra cost of extending the benefits to all operators in the area is insignificant. It is felt that this expense has resulted in direct benefits to the sponsoring association and to the company.

This cooperative effort has generally resulted in close and harmonious relationships between the company and the various state associations. The most complete and effective of these programs is functioning in the state of Alabama, in which the association directors were actively seeking the help of a qualified casualty company in the solution of the insurance problems of the association members and other dealers within the state.

Competitive Proposals

Pan American's proposal to provide an association-approved insurance program backed up by a statewide safety inspection and training service was selected out of numerous competitive proposals. The associa-

Speaking over an accident panel at the Louisiana Butane-Propane Institute, L. E. Davis discusses different phases of butane safety.

tion told the members, "We have arranged this insurance program for you. We think it is good, and urge you to accept and make use of it. The more completely the program is accepted, the more useful it can become to you and to the industry."

A schedule of 10 preliminary safety schools was arranged, with locations selected to bring the training within reach of every operator in the state. The schedule was tight—10 schools of three 3-hour meetings each were held over a six weeks period during February and March, 1953. Those who attended were enthusiastic, but there were necessary absences, and many companies and individual employes did not take the trouble to attend. Additional schools have been held to bridge this gap and provide training for new employes. A surprising number of those who attended the first safety schools have chosen to repeat.

Pan American regards the engineering inspection service and the safety training program as an essential part of its insurance service. Expansion into new territory has been limited in line with the ability of the field staff to carry on the necessary work along these lines. Profitable operation under this program requires reasonable concentration of accounts, and an insurance company that does not operate at a profit cannot be a desirable insurance carrier very long.

Any inference that the insurance problems of any segment of the L. P. gas industry have all been solved is beyond the realm of possibility. The record has shown general improvement in the insurance market throughout the country, but it is particularly noticeable in the territory served by Pan American.

How much of this gain is attributable to the activities of a young and vigorous company specializing in L. P. gas insurance is an open question. Two items of great importance cannot be overlooked. First, the cost and availability of excess liability coverage, which is generally obtained through the London insurance market, have shown great improvement. This has been the result of more adequate loss ratio records, plus pressure from several sources, but the influence of the company offering the largest premium volume in this line should not be overlooked.

Greater Insurability

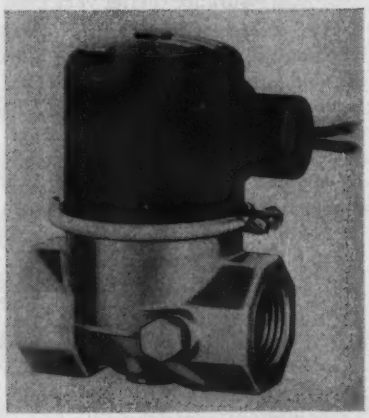
Second, the insurability of the industry is improving as the result of improved safety practices and reduction of accident frequency. Insurance rates are adjusted periodically to bring them in line with loss experience, following any significant trend upward or downward. All effective work in accident prevention contributes to ultimate reduction of rates, and any improvement in insurability makes an industry desirable in the eyes of more insurance carriers.

Pan American's field safety activities and training programs have contributed an influence of value in making LPG insurance more readily available now than in the past. And the Alabama program has demonstrated clearcut advantages in concentrating enough premium volume in the hands of one company to justify that company in rendering an industry-wide safety program. ■

New Products and Trade Literature

To secure further information on products or new publications, fill out the coupon and mail, indicating by number the information desired.

1. Magnetic Gas Valve For Furnace and Heater



Free of both valve closing impact noise and disturbing hum is a newly developed magnetic gas valve for gravity and forced air furnaces and unit heaters. The new valve, manufactured by General Controls Co., opens and closes gas lines at the demand of room thermostats, limit controls and other devices.

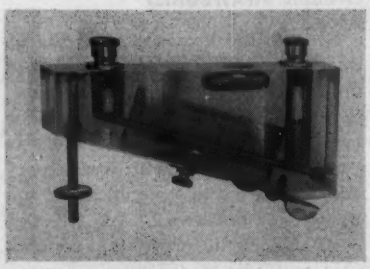
The new magnetic gas valve, called the K-3A, is a soft seated type and has a specially designed solenoid to make it humless. The valve disc is made of synthetic rubber so that it may settle quietly against the valve seat when closed. It is brought into the shutoff position by spring action plus the steady pressure of gas. These two factors assure tight shutoff.

Current consumption of the K-3A is low, and upon interruption of the current the valve immediately closes.

General Controls' new valve is available in sizes from ⅜-in. to ¾-in. ips. While the K-3A is adaptable to many applications, it is primarily a key component in General Controls' T-30 solenoid control system for 24-volt heating control. This system, consisting of the K-3A, a General Controls' room thermostat, and a transformer and cable, gives thermostatic control of gas-fired appliances, furnaces, boilers, and wall and unit heaters.

General Controls Co.

2. Gauge For Blower Speed



Manufacturers of residential air conditioning systems stress the extreme importance of achieving the correct air flow across the system's evaporator. The only practical way of determining this out on the job is to measure the static pressure drop across the evaporator.

Designed to do just that, the Dwyer gauge No. 172 provides a tool-kit-size instrument that is quickly attached or detached, is break-proof and permanently accurate. It measures 0 to 1-in. water pressure on a 3-in. scale calibrated in .02-in. divisions.

Most manufacturers specify the exact pressure drop (measured in inches of water) at which each evaporator of their make is designed to operate. Thus it is a simple matter to attach Dwyer gauge No. 172 and adjust blower speed until the pressure drop reading corresponds with the manufacturer's recommendation.

The No. 172 gauge takes the guess work out of blower speed adjustment and insures maximum efficiency. It is also suitable to determine furnace draft, filter conditions, and plemun pressure.

F. W. Dwyer Manufacturing Co.

3. Hand Burner

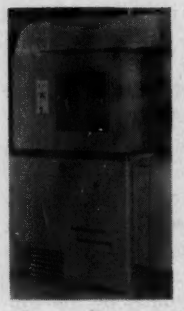
A flame-thrower type hand torch with continuous pilot and quick acting main valve so flame may be turned on and off as needed has been announced by Manchester Welding and Fabricating Co.

Throwing a flame jet from 2 to 6 ft, this burner is useful for burning out fence rows and ditches, burning spines off cactus, controlling new weed growth in plant beds, cleaning off weeds from parkways, borders, and highway shoulders, various forestry activities, sterilizing poultry yards and buildings, railway maintenance work, and other jobs requiring quick application of flame.

The burner is 34 in. long, weighs only 3½ lb, has a comfortable hand grip, and wind-proof pilot. Operates directly from vapor space of any size LPG cylinder or tank.

Manchester Welding & Fabricating Co.

4. Furnace and Dryer In One



Heating engineers have now made it possible to have an automatic gas furnace and gas clothes dryer in one economical unit.

Called the Herbster "Heat-N-Dry," the unit is about the size of an ordinary refrigerator and saves the home owner up to $175 on the cost of buying and installing a separate gas furnace and clothes dryer.

The dryer, which is mounted on top of the standard lowboy warm air gas-fired furnace, is said to cut clothes drying time in half, safely drying all fabrics much faster than formerly possible. The short drying cycle, combined with the fact that only filtered air (free of all combustion gases) touches the clothes, assures safe drying of even the most delicate fabrics. The dryer door, which shuts off the dryer when opened, is at chest height so that wet clothes can be easily inserted into the cabinet without bending or stooping.

Other features claimed for the "Heat-N-Dry" include the elimination of any basement moisture problem since all water in the wet clothes and lint is blown through the vent extension to the outdoors; a saving of floor space, since there is no need for space for a dryer; and the fully automatic operation. The lower part of the unit is the lowboy automatic gas furnace which features the "Torcon" cast iron heat exchanger.

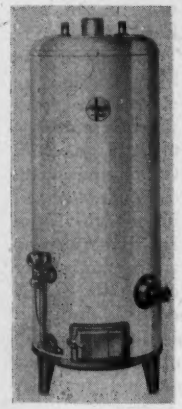
Features of the "hushed" heating units are the jumbo sized filters

which are easily replaced without removing any panels from the furnace; the aircraft centrifugal type blower assembly which speeds air even through long ducts; new non-corrosive cast iron raised drilled port burners especially designed to permit more efficient combustion of gas with minimum waste.

All units have AGA approval.

Herbster Products Co.

5. Water Heater



Malleable Iron Range Co. has announced its introduction of a high efficiency, fast recovering, economically operated gas hot water heater to be sold with its regular line of ranges and heaters.

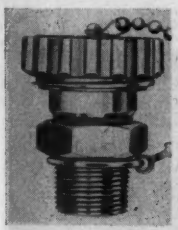
Special features of the Monarch heater are: a "Unitrol," 100% safety shutoff, an extra-heavy gauge storage tank, a high-efficiency slotted cast iron burner and filter, with a lifetime guarantee on the burner. This unit can be used with natural gas, manufactured gas, mixed gases, propane or butane.

Of special importance in economy of operation is a flue baffle which slows escaping gases, reduces stack loss and lowers operating costs by deflecting heat to the water.

All heaters are AGA approved and come in either 30- or 40-gal. capacity.

Malleable Iron Range Co.

6. Tank Fill Valve



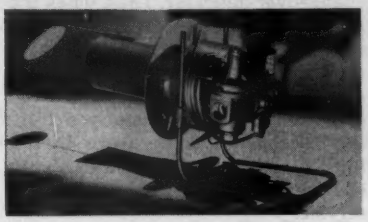
Filler valve D-1855 is designed primarily for use in automotive fuel containers. The ¾-in. tank connection offers a distinct advantage since all valve connections within a container may be ¾-in. NPT (American National Taper Pipe Thread). Also, valve may be located to suit individual installations without revising production procedure.

This valve is exceptionally low profile and extends a minimum above the tank. The design also includes Acme threads wherein the sharp edges of the incomplete first and last threads are milled flat to prevent injury to servicemen.

This valve has the same resistance to break-off found in conventional 1¼-in. NPT filler valves. This is important since regular heavy filling hoses will be used with these valves.

Selwyn-Pacific Co.

7. Conversion Burner



Two monoport gas burners featuring low initial cost, compact design, and high efficiency have been announced by the Barber Gas Burner Co. Designed for conversion and original equipment, advantages arise from unique design and construction, according to the company.

One of the burners, the SNG1-A, is offered to heating contractors for conversion applications in residences. It is rated on L. P. gas from 75,000 to 105,000 Btu input. It is installed exactly like an oil burner and in most conversions from oil the combustion chamber need not be altered.

The SNG1-A has no moving parts. It consists of a pressed steel venturi enclosed in a blast tube.

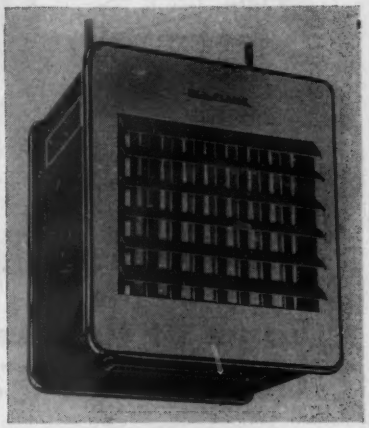
Expensive foundry patterns are eliminated. The pilot assembly and all interior parts can be quickly removed for inspection or partial replacement. It is furnished with complete automatic controls and can be adapted to furnaces or boilers with equal efficiency. It is listed by AGA

Barber Gas Burner Co.

8. Suspended Heater

Many features are announced by Vacuum Gas Burner Co. in its VGU series of suspended unit heaters. These new Blu-Flame units are compact, permitting installation in low ceiling areas.

The units have individual styling, highlighted with polished chrome trim and finished in baked, light grey two-tone Hammerloid enamel. Ease of installation and service are also claimed for the units, which are available in four popular sizes: 30, 50, 75 and 100,000 Btu inputs for natural manufactured, mixed and L. P. gases.



Vacuum Gas Burner Co.

For notices of more new products and trade publications turn to page 141 of the Power Section.

BPN

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1/55 Fill in numbers of items in which you are interested.

No. ..... No. ..... No. ..... No. .....

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NAME AND TITLE.....

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9. Service, Reserve Indicator

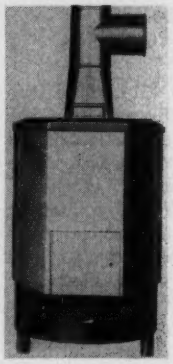
An L. P. gas service and reserve indicator for use with automatic throw-over manifolds has been introduced by the Bastian-Blessing Co. Featuring simplicity and foolproof design, the indicator is being made available for both direct and remote L. P. gas installations.

According to company officials, the indicator affords 360° visibility of its changeover indicator. Thus, when the manifold on a two-tank system switches over to the remaining or reserve tank, the diaphragm-type mechanism brings up the highly visible red indicator that can be seen from any direction, making sure that a filled tank can be installed in plenty of time to avoid any interruption of service.

While greater visibility is claimed as the principal feature of the indicator, it is also said to be unusually rugged and completely weatherproof, and never affected by clogging with insects. The indicator's non-corrosive elements will not bind in operation. The unit has a forged brass body with a weatherproof Lucite cap that is easily removed for calibration.

The Bastian-Blessing Co.

10. Outdoor Incinerator



An outdoor, automatic gas-fired Incinor is now on the market.

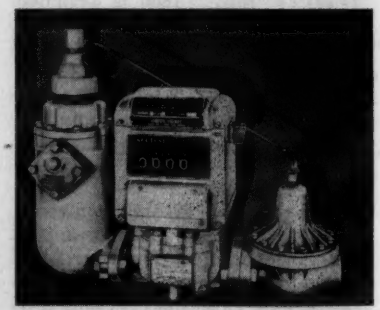
Known as the Model 254 Incinor, this product offers an automatic gas-fired incinerator to owners of all homes with Type B chimneys as well as masonry chimneys. An extended lip on the feed door and special finish of durable heat-resisting, stay-white enamel offer all-weather protection. It is approved by AGA and designed for L. P. gas.

Several of the outstanding operating features include an automatic clock-dial which turns on the gas and lights the burner automatically, turns off automatically at end of burning time. A safe, positive-acting thermo-magnetic valve controls the pilot at all times.

The burner is rated at 20,000 Btu per hour in order to provide fast, complete combustion of garbage. The top opening is 11½ in. by 16 in. and the overall dimensions of the Model 254 are 35 in. high by 22 in. wide by 26½ in. deep.

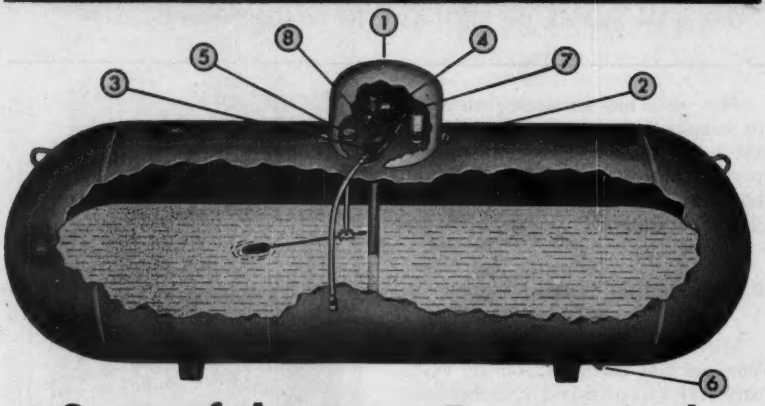
Incineration Division, Bowser Inc.

11. Back-Pressure Valve



A new, improved differential back-pressure valve, designed by Neptune Meter Corp., with special emphasis on low loss of head for maximum rate of flow when metering bulk L. P. gas deliveries, has been incorporated in the new Red Seal L. P. gas tank truck "compact" meter.

Economy LP-GAS SYSTEMS



Some of the many Features and Qualities of *Economy* Systems

1. ONE PIECE STREAMLINE DOME!
2. STURDY DETACHABLE HINGE!
3. LARGE ORFICE REGULATOR!
4. LIQUID TAKE-OFF, BUILT-IN EXCESS FLOW!
5. FLOAT GAUGE, REPLACEABLE SNAP-ON DIAL!
6. BOTTOM PLUG FOR LIQUID, OR CLEAN OUT!
7. LIQUID LEVEL OUTAGE GAUGE!
8. PRESSURE GAUGE OUTLET!

SEE US BEFORE YOU BUY!

Economy Truck Tanks, Transports, Skid Tanks, Anhydrous Ammonia Tanks and all types of Steel Fabrications.

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D-1610

Recommended for 500 to 1,000 Gal. Tanks.

REGULATOR CAPACITY: 1,125,000 BTU at 10# Inlet Pressure.

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Here's what the new Sel-Pac D-1610 Regulator will do for you. With a normal capacity well in excess of 1,750,000 BTU at approx. 50# inlet pressure, it is ideal for heavy duty installations. For multiple dwellings, motels, commercial cooking ranges, abnormally large water heating requirements, etc., the D-1610 is unexcelled. Inherent design characteristics offer the operator an unusually low lock-up with only slight deviations in pressures throughout its entire working range.

SPECIAL CONSIDERATIONS IN DESIGN WHICH MINIMIZE FREEZE-UPS

The Sel-Pac D-1610, like the famous D-1600, incorporates an exclusively designed expansion chamber which allows more passage area for ice crystals that form when wet gas expands at the orifice. Then too, the full 1/4" diameter gas orifice tends to reduce freeze-ups. Regulator is painted black which further aids heat absorption and reduces possibilities of freeze-ups.

A most rugged and dependable unit capable of handling capacities from 1,000,000 to 2,000,000 BTU, this Sel-Pac model D-1610 is priced well below other comparable regulators.

SEND TODAY FOR PRICES AND DELIVERY INFORMATION.

SELWYN-PACIFIC COMPANY

Manufacturers of Compressed and LP-Gas Control Equipment

340 West Avenue 26 • Los Angeles 31, California

ADVERTISEMENT

LP-GAS SERVICE TIPS

by GEORGE R. POSTLEWAIT
General Manager
SELWYN-PACIFIC COMPANY

1. A quick opening and closing of a cylinder or tank valve before connecting the pigtail may blow foreign matter from the valve outlet which might otherwise damage the regulator seat.
2. Don't overtighten new P.O.L. connections. If a P.O.L. seat is crushed, excessive tightening is required from that time on.
3. Whenever possible, install regulators in a vertical position with the inlet at the top. This gives moisture, heavy ends, fine scale, etc., a chance to pass on through the regulator and minimizes service calls.
4. Be sure the regulator breather and relief vent is kept open at all times. A frozen or clogged vent not only leads to improper regulation but can cause serious accidents.
5. Don't try to use regulators with large orifices which were designed for second stage operation, as single stage regulators. Erratic delivery, humming, high lockups, etc., will result.
6. Don't expect a regulator with a small orifice designed for single stage operation, to have the same capacity if used as a second stage regulator. The small orifice won't pass as much gas at the reduced inlet pressure.
7. Don't *guess* at the size line on the delivery side of your regulator. Size the line to give an orifice pressure of not less than ½" (water column pressure) less than the outlet pressure at the regulator. (Write us for tables covering the proper size piping for various loads and distances.)
8. Don't guess at your orifice pressure. Use an accurate low pressure gauge or a water manometer to make all final adjustments.
9. Don't screw down the regulator adjustment to obtain higher pressures to compensate for pressure drops caused by under-sized lines. This leads to unnecessary service calls to adjust pilot lights, fluctuating orifice pressures, inefficient combustion, etc.
10. When calculating the size line required from the regulator to the burners, be sure to use the total capacity of ALL burners in determining the line size.
11. Don't install containers any closer to any important building or property line than the distances listed by Pamphlet #58.
12. Never transport ICC containers on which the valves are not protected by either: (1) a fixed collar (welded to the cylinder), (2) a cylinder cap completely protecting the valve.
13. Never transport or install ICC cylinders in a horizontal position or in any position when the safety relief device is not directly connected to the VAPOR space of the container.
14. Never tamper with or try to adjust a safety relief valve. Breaking the seal nullifies the U.L. approval.

Copies of these "SERVICE TIPS" and table of pipe sizes, to fit 3 ring binder, available without cost. Please write

SELWYN-PACIFIC COMPANY
340 West Avenue 26
Los Angeles 31, California

This meter is a complete tank truck metering system in one compact unit, with all accessories included. It is listed by Underwriters' Laboratories, and meets API-ASME positive displacement meter code requirements.

The differential valve, located on the outlet side of the meter, maintains a constant liquid pressure condition within the meter in order to prevent vaporization of LPG. This vaporization, if allowed to occur, would result in over-registration as the meter is forced to measure vapor instead of liquid.

Because vapor may sometimes enter the line to the meter, a vapor release device must be provided for accurate metering. The differential valve has a secondary purpose of providing back-pressure required to actuate the vapor release. In the Neptune meter, the vapor release unit is specifically designed to operate with high capacity and efficiency on a relatively low differential pressure.

This low differential pressure requirement is a big advantage of the Neptune "compact." Since it need never be adjusted from season to season, no diaphragm adjustment is provided, thereby eliminating the possibility of improper setting in the field.

Simple in construction, the differential valve combines a diaphragm and a spring so designed that the valve will not open until the delivery pump has built up pressure within the meter to 11 lb above the vapor pressure in the truck tank.

The Red Seal meter is designed for high pressure, safe at all L. P. gas working pressures. Capacity is 5 to 30 gal. per minute. Available with a choice of ticket-printing or simple direct reading registers.

Neptune Meter Co.

12. Gas Heating

A booklet, "What You Should Know About Gas Heating," has been published by the William Wallace Co., makers of "Metalbestos" gas vent pipe.

The booklet discusses in non-technical language such questions as heat loss, the value of insulation, and what constitutes true heating comfort. It examines the important advantages of gas heating and reviews the commonly used types of central heating systems and individual room heaters. It stresses the importance of properly designed gas venting to match today's modern gas appliances.

The booklet is being made available to assist consumers in understanding and evaluating heating and venting systems.

William Wallace Co.

13. Public Relations

How to take the public behind the scenes and show them the "inside story" of the gas business is outlined in "Open House," 16-page illustrated booklet produced by American Gas Association.

"Open House" is the first in a series of how-to-do-it booklets that AGA is preparing on public relations subjects of basic interest to member gas companies. Each booklet in the series will be designed to help stimulate stronger gas industry public relations efforts at the local level. While primarily directed at gas utilities, it is valuable for LPG men, also.

Material and suggestions for the plant tour booklet were collected from gas companies throughout the country. Five brief case histories show what local companies are doing to win community friends through plant tour programs.

American Gas Association

14. Fire Protection

"Recommended Fire Protection of Liquefied Petroleum Gas Storage, Unloading and Processing Areas" is the title of a technical bulletin issued by Ansul Chemical Co. and available upon request.

The bulletin describes the plants where LPG is used, the kinds of equipment best suited to control fires of various origins, and specific instructions upon how to approach and extinguish L. P. gas fires. It also lists the sizes and kinds of fire fighting equipment that should be provided for different processing areas.

Ansul Chemical Co.

15. Swivel Fittings

A new colored descriptive bulletin covering the Emsco HP and HT small size, high pressure and high temperature ball bearing swivel fittings is offered.

Emsco's line of small size ball bearing swivel fittings ranges in size from ⅜ in. to 1 in. and from working pressures of 6000-lb psi at 225° F to 1250-lb psi at 750° F.

These fittings are very versatile in their application. The new sales bulletin describes the method of construction and application as well as giving complete dimensions, specifications, weights, and the engineering data.

It is illustrated with many sectional drawings and clearly shows the various types of packing for steam, hot water, oil, liquefied petroleum gas, and chemicals.

Emsco Manufacturing Co.

Associations

Current activities of national, regional and state liquefied petroleum gas associations.

Baukhage February Speaker At East-Central Gathering

H. R. Baukhage

Speaking at the opening luncheon of the East-Central district LPGA convention will be H. R. Baukhage, Washington news analyst.

The three-day convention and trade show will be held Feb. 8-10 at Convention Hall in Philadelphia. In order to accomodate convention goers and the trade show, the location and original dates of the affair were changed.

Mr. Baukhage, whose speech is titled "All Isn't Quiet Along the Potomac," has for three decades travelled over oceans and continents to be in the front row for epoch-making events of the century.

Present at the Reichstag when Hitler's legions invaded Poland, on the scene at the Nurenberg war crime trials, talking with kings, dicators and presidents, Mr. Baukhage is surpassed by few men in familiarity with the national and international scene.

Following Mr. Baukhage as an afternoon speaker will be John Normile with "Getting the Carriage Trade." Building editor for *Better Homes & Gardens*, Mr. Normile has done much in developing and improving design and efficiency of small home plans for American families. Under his direction the program of five star home plans has been carried out; thousands of these plans have been used by families throughout the country to build homes.

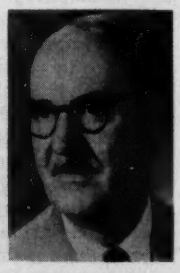
For more than 20 years Mr. Normile has directed the building department activities at *Better Homes & Gardens*. In addition to home plans and design, he is in charge of editorial material concerned with construction and maintenance of the home.

On Feb. 10 Zenn Kaufman, author of "Showmanship in Business," will address the state associations' luncheon. Speaking about showmanship, he will apply it to advertising, publicity, sales meetings and contests, displays, training and employe relations.

Other speakers at the convention will include W. R. Sidenfaden, national president of LPGA, and L. J. Chandler, of the Gas Institute of Greater Miami.

According to the trade show committee, the purpose of this year's show is not only to exhibit the products of manufacturers and distributors, but to promote and develop ways and means for the use of these products in each dealer's own business. Accordingly, the committee is awarding at the exhibitors' breakfast

Zenn Kaufman



John Normile

engraved cups honoring the manufacturers and distributors who have done the best job toward accomplishing this aim.

Displays will be divided into six classifications: LPG equipment manufacturers; range manufacturers and distributors; heating manufacturers and distributors; water heater manufacturers and distributors; industrial, commercial equipment, and miscellaneous; and producers. Each exhibitor will designate the classification in which he desires to be judged.

The judging will be done on the basis of "the display which most effectively educates the dealer on the sale, installation, maintenance or use of a product in his own business and by so doing, raises the standards of the L. P. gas industry." There will be six cups and six honorable mention certificates awarded.

The convention will close with a banquet, followed by professional entertainment and a drawing for grand prizes. A mink stole will be given to the winning lady, an L. P. gas delivery truck to the winning man.

LPGA Directors Meet, Adopt Nine-Point Policy

A nine-point statement of legislative policy was adopted by the directors of the Liquefied Petroleum Gas Association at their meeting December 2-3 in Kansas City, Mo. The two-day session was held at the Hotel President.

The statement favors state and local laws and enforcement procedures aimed at promoting safe operation of L. P. gas storage, handling and consuming installations.

The legislative policy is advisory only, LPGA leaders pointed out, but reflects the experience of industry men familiar with law-making problems for many years.

The statement was drafted by the group's legislative committee headed by Harry R. Thomas, Tuloma Gas Products Co., Tulsa. The policy among other things, opposes licensing provisions, compulsory insurance requirements, and minimum dealer storage clauses.

Walter A. Naumer, Pyrofax Gas Co., New York, reported on plans for early publication of the association's first magazine. Publication of a consumer education booklet was authorized and its preparation turned over to the safety committee headed by Richard H. Wherry, Gas Equipment Supply Co., Atlanta.

The board accepted in principle the outline of a comprehensive home study course in LPG installation and service drafted by W. A. Schuette, Hausgas Inc., Washington, Mo., R. R. Johnson, Fuelane Corp., Liberty, N. Y., and the education committee.

The 1955 budget of $325,210 was adopted.

West Virginia LPGA Re-elects C. W. Faulkner

West Virginia LPGA has announced the re-election of C. William Faulkner, Gas Service Inc., Bluefield, as president for the year. Serving with Mr. Faulkner will be Samuel Gurson, Samson Co. Inc., Clarksburg, as vice president.

Mrs. Paul R. Dixon, Dix-O-Gas

NEW Peerless

The New
STANDARD OF EXCELLENCE
IN Gas
UNIT HEATERS

A new concept in Unit Heaters—*new* inside and out. Stimulating styling that sells... plus more engineering achievements that surpass all others. Efficiency and rugged construction for the toughest heating task.

Top flight quality to suit even the most conservative buyer has established the name — Peerless — that has been counted on for dependability for 70 years.

Styled for Beauty
Built for Duty

FAN AND BLOWER TYPES

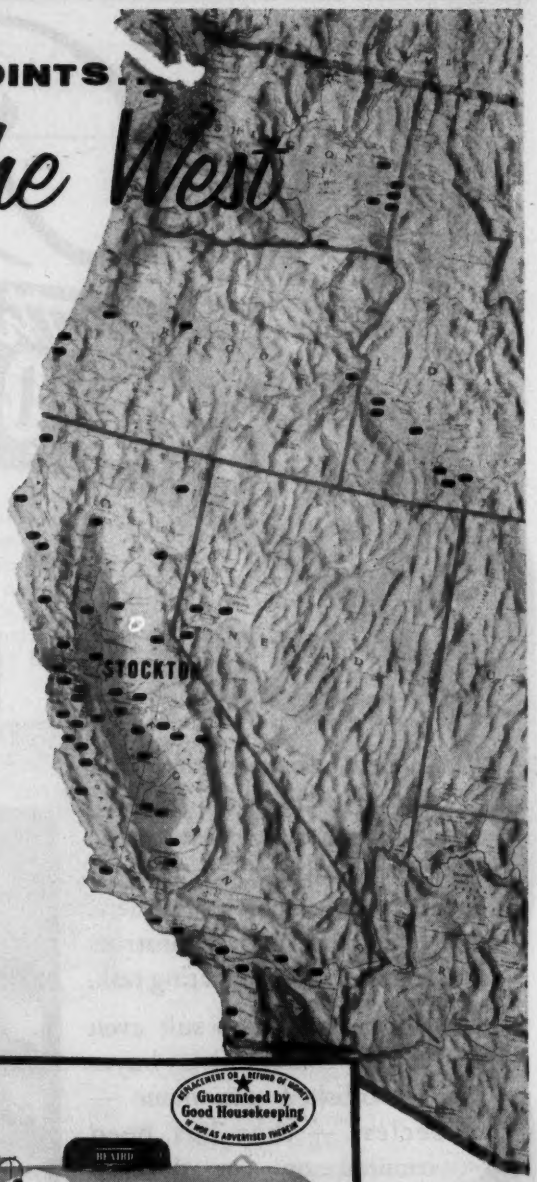
FIVE SIZES
IN EACH TYPE
60,000 BTU — 80,000 BTU
100,000 BTU — 150,000 BTU & 200,000 BTU

SEE YOUR DISTRIBUTOR TODAY OR WRITE US

PEERLESS MANUFACTURING CORP., —— LOUISVILLE 10, KENTUCKY

74 BEAIRD STOCKING POINTS...

...Serve the West



Do away with LP-Gas system inventory worries . . . large stock investments . . . shipping delays . . . and LCL freight premiums. Make your next pick-up from any one of BEAIRD'S 74 WEST COAST STOCKING POINTS. Established at key locations from the Mexican border to Canada, they provide a handy source of *local supply* for your trade area. You benefit from *"full load" price savings* when you buy one or more LP-Gas systems from a Beaird stocking point.

Your customers will be better satisfied, too, when you deliver them a MODERN *nationally advertised product* . . . the only LP-Gas system to carry the *GOOD HOUSEKEEPING SEAL.*

Only Beaird LP-Gas Systems are Advertised . . . Merchandised and Distributed . . . Nationally.

THE LP-GAS SYSTEM WITH EXCLUSIVE "MOISTURE FREE" WINTER PROTECTION.

Write or call today for the full story on Beaird's nation-wide stocking point program — or the location of your nearest Beaird local supply point.

PACKAGED COMPRESSOR PLANTS
CAST STEEL FITTINGS
PRESSURE BULK STORAGE
ANHYDROUS AMMONIA EQUIPMENT
LP-GAS SYSTEMS
MACHINING
FABRICATING
STEEL WAREHOUSE

BEAIRD

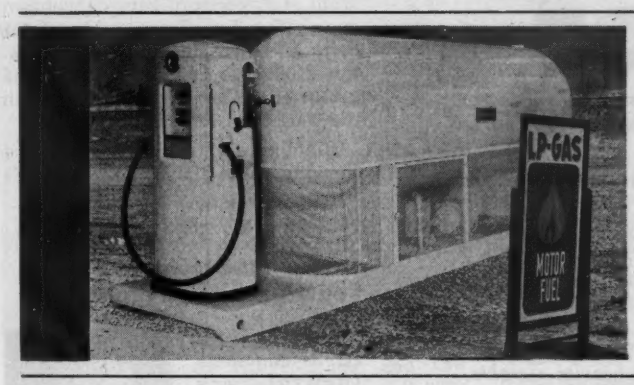
THE J. B. BEAIRD COMPANY, INC.

SHREVEPORT, LOUISIANA • STOCKTON, CALIFORNIA

Tap these **EXTRA GALLONAGE MARKETS** for *new customers... new profits*

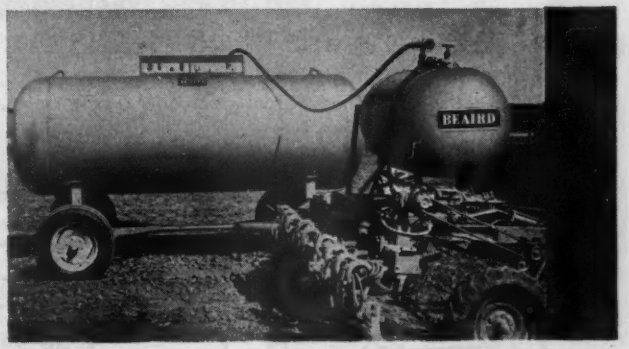
Looking for a new source of income...or a profitable companion line for your present business? Then take a long look at Beaird's Extra Gallonage Builders — Packaged LP-Gas Filling Stations and Anhydrous Ammonia storage and handling equipment.

HERE'S HOW-



THE 498,000,000-GALLON LP-GAS ENGINE FUEL MARKET is growing daily. (33% increase over last year) Fleets of LP-Gas fueled trucks and other vehicles are rolling down the highway . . . more and more LP-Gas fueled tractors are being used on the farm . . . city buses and taxicab fleets are converting to this new fuel . . . *and you can sell 'em.* Your Beaird packaged LP-Gas filling station comes to you ready to go to work immediately, storing and dispensing LP-Gas fuels. Your customers will like it too . . . for fast, efficient service.

THE $440,000,000 NITROGEN AND ANHYDROUS AMMONIA FERTILIZER MARKET, right in your own back yard, is one of the fastest growing businesses in the country . . . and you have the pressure storage experience to share in the profits from the sale of this miracle fertilizer. Beaird offers you a complete line of storage equipment—applicator tanks, truck and trailer mounted field supply tanks, farm and dealer storage vessels, trailer transports and complete packaged "turn-key" dealer installations designed to put you in this profitable business—*economically!*



THE 2,500,000,000-GALLON LP-GAS HOME MARKET has been built on satisfied customers. That's why you'll want to join the hundreds of dealers who are switching to Beaird LP-Gas systems. Your customers are better satisfied and easier to sell, when you offer them the only nationally advertised and distributed LP-Gas system—the only LP-Gas system that carries the Good Housekeeping Seal.

Get full information on Beaird products designed for these extra gallonage markets — write today.

PACKAGED COMPRESSOR PLANTS | CAST STEEL FITTINGS | PRESSURE BULK STORAGE

ANHYDROUS AMMONIA EQUIPMENT | LP-GAS SYSTEMS | MACHINING FABRICATING STEEL WAREHOUSE

BEAIRD

SPECIAL NOTICE — for immediate delivery Beaird "Payliner" trailer transports:

For Anhydrous Ammonia — 6165 W.G. Capacity single barrel design 100% X-rayed and stress relieved and 5380 W.G. Capacity twin barrel design 100% X-rayed.

For Propane — 6000 W.G. and 5600 W.G. Capacity twin barrel design 100% X-rayed.

THE J. B. BEAIRD COMPANY, INC., SHREVEPORT, LOUISIANA
STOCKTON, CALIFORNIA

Stock the Brooder that sells itself!

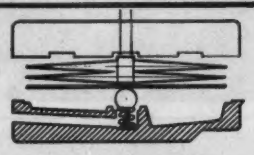
A. R. WOOD
RADIANT GAS BROODER
with 26% more space!

That's right folks, the A. R. Wood 500 chick brooder has a 76 inch canopy... which gives 26% more usable space than most competitive makes. The A. R. Wood 1000 chick brooder, with a 99 inch canopy, has 18% more space than most other brooders.

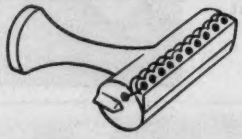
The benefit to your customer is more room for his chicks. More room means less crowding . . lower mortality, heavier weights, greater profit to him; greater satisfaction with you—his supplier!

For 27 years, the A. R. Wood Manufacturing Co. has pioneered new developments in the poultry industry. Widely imitated, but never equaled, the A. R. Wood radiant gas brooder is exceedingly well-made and has become the best selling brooder among experienced poultrymen from coast to coast!

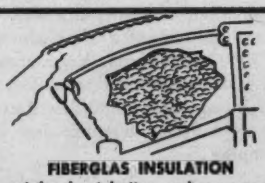
These exclusive features make A. R. Wood brooders the most dependable and economical on the market:



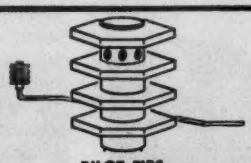
PRECISION THERMOSTAT
insures constant temperature even in coldest weather.



ALUMINUM BURNERS
light from one pilot, are easy to remove, easy to clean.



FIBERGLAS INSULATION
retains heat better; reduces operating costs.



PILOT TIPS
of non-corrosive, non-clogging stainless steel.

A. R. WOOD MFG. CO.
Dept. 3, Luverne, Minnesota
Please send me more information on the A. R. Wood Radiant Gas Brooder.
Name_____
Address_____
Town_____

For complete details mail coupon today.

A. R. WOOD MFG. CO.
SANTA CRUZ, CALIFORNIA · LUVERNE, MINNESOTA

Inc., Oakland, was elected secretary and R. L. Dougherty, Dougherty Propane Co., Mineral Wells, was re-elected treasurer.

The West Virginia association's first annual convention was held in Clarkburg. Keynote address was delivered by Michael O'Malley, sales and public relations manager of West Virginia for American airlines.

William Thacher Longstreth of Philadelphia spoke on "National Advertising at the Local Level." Sol Weill of Royersford gave convention goers "The Ten Commandments for Selling." R. H. Mahnke from the national office in Chicago spoke to the group on "West Virginia's Place in the National LPGA."

Highlighting the program was a showing of the film "It's Everybody's Business."

A. J. Ellender Addresses Fourth AAI Convention

Sen. A. J. Ellender

The Agricultural Ammonia Institute was told at its fourth annual convention on December 6-8 that there is a great future in the anhydrous ammonia industry because ammonia as fertilizer will play an important role in increasing crop production to keep pace with the growing population of the country.

Speaking to convention goers at the Jung hotel, New Orleans, Sen. Allen J. Ellender, state of Louisiana, described the use of AA as "one of our modern day agricultural miracles."

The first two days of the convention were devoted mainly to ammonia as a plant nutrient; the last session dealt with the actual handling of AA.

New officers elected at the meeting include Mark C. Craft, Midwest Fertilizer Co., Springfield, Ill., president; Tully W. Talbot, Chemco, Audubon, Iowa, first vice president; Charles W. Bourg, PV-82, Lincoln, Nebr., second vice president; Allen R. Brown, Edward Nelson Ltd., Clarksdale, Miss., secretary; and Gen. Ralph H. Wooten, Mid-South Chemical Co., Memphis, treasurer.

Delegates toured American Cyanamid's Fortier AA plant during the convention, and also attended the accompanying trade show.

Total attendance was 1088.

MANUFACTURERS OF THE

World's Finest Propane Delivery Units at LOWER PRICES

Federal Tax Paid — Easy Terms

Our trucks are in use the world over. They are perfectly balanced, weigh less, and are plumbed "right." We buy all pumps, meters, valves, hose, fittings, etc., in large quantities on a direct from factory basis and these SAVINGS ARE PASSED ON TO YOU. We maintain no expensive sales organization and our plants are located in smaller towns, all of which means SAVINGS TO YOU!

Hardly a day passes without our receiving at least one letter from a particularly satisfied customer. We get criticisms, too, but for the most part customers happily tell us we have done a good job helping them. Giving interested attention to every customer problem built our business. Tell us your problem and we will do our best to help you.

MODEL 150

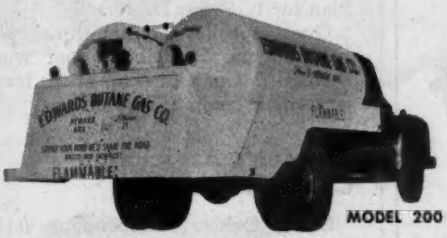
LPGA

PAY ONLY 25% DOWN

Balance in 18 months at 5% interest!

Model 150 is available in sizes through 1800 WG, twin or single barrel.

BRAND NEW 1955, 2-ton Chevrolet (Model 6403). Two-speed with 8.25 rear and 7.50 front tires, **BIG ENGINE,** Model 100 with 1400 WG twin tank. Piped complete with pump, hose, PTO, lights and paint. **ONLY $3,895.00.**



MODEL 200

MODEL 300

MODEL 200 — 1250 to 1600 WG twin. For your safety all necessary valves, fittings, meter, reel, hose, etc., are located in the rear compartment.

MODEL 300 — 1250 to 1600 WG twin. Large rear cabinet, two large side cabinets and fully skirted.

WE REALLY SAVE YOU MONEY ON NEW TRUCKS Any make or model. Chevrolet, International (Factory equipped for propane), G.M.C., Ford and Dodge. We are new truck dealers. Get our prices before you buy.

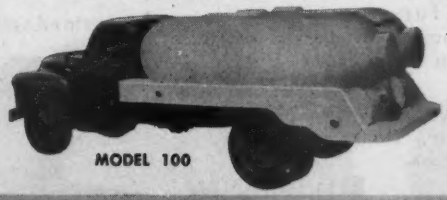
SEVERAL GOOD USED PROPANE TRUCKS FOR SALE — IMMEDIATE DELIVERY

MODEL 100 PACKAGE PRICES

1400 WG	1600 WG	1800 WG
$1,765.00	**$1,875.00**	**$1,975.00**

Prices quoted include PTO, shaft, Viking KK-200 mechanical seal pump, 50' ¾" filler hose, aluminum paint and lights. (Federal Tax paid.) Meters, Hose Reels, Carburation and other extras available.

Add to above prices for Model 150 ..... $120.00
Add to above prices for Model 200 ..... $150.00
Add to above prices for Model 300 ..... $250.00



MODEL 100

Write, Wire or Phone the Plant Nearest You

WHITE RIVER DISTRIBUTORS, INC.

Call Preston W. Grace, 570 or 686 — Batesville, Arkansas

TEXAS MANUFACTURING CO.

P. O. Box 738 — Gainesville, Texas (60 Miles North of Dallas) — Phone Howard 5-9851

JOE COBBLER, PRES. & GEN. MGR.

Palace Hotel to Be Site Of Western District Meet

The Palace hotel in San Francisco will be the site of the Western district convention and trade show on August 29-30.

A 12-man advisory committee representing the L. P. gas industry in the states of California, Arizona and Nevada voted to sponsor the convention. A survey of manufacturers and suppliers was conducted to determine whether or not a trade show should be sponsored in connection with the convention.

This will be the only LPGA sponsored district convention and trade show for the tri-state area during 1955.

Texas Plans Winter, Spring Meet

Directors of the Texas Butane Dealers Association have announced that Austin will be the scene of the mid-winter membership meeting of the group, while Dallas will be the site of the tenth annual convention on June 22-24, 1955.

January 22 is the date set for the mid-winter meeting at the Stephen F. Austin and Driskill hotels in Austin. This meeting will be the fourth of its kind for the association.

Those members attending the one day affair are invited to remain in Austin over night to attend the formal open house of the association's permanent home, which will be dedicated on Sunday morning, January 23. The organization expects to have its offices moved into the building by the time of the open house.

The 1955 convention will be held at the Adolphus and Baker hotels. Preliminary trade show and convention plans are already in progress.

SQS

SERVICE • QUALITY • SATISFACTION

A Complete Line of Single and Twin Barrel Propane Truck Tanks

TWIN BARREL

Very popular model. Can furnish in any capacity you desire. Custom made, to your specifications. A unit to be proud of.

TWIN BARREL

TRANSPORTS

Can furnish in single or twin barrel type. Unit constructed so load can easily be shifted to meet different type tractors. Payload makes you money, this is our specialty.

TRANSPORT

SINGLE BARREL

For one fuel operation, the 1200 single meets all requirements, can furnish any capacity you desire. The leader in its own field.

Send Us Your Specifications and We Will Submit Quotations.

•

Complete Modern Shop Facilities for Mounting and Testing All Pumping, Metering and Propane Handling Equipment.

SINGLE BARREL

"EVERYTHING IN LPG AND ANHYDROUS AMMONIA"

The Pasley Mfg. & Dist. Co.

601 East 11th Street • Kansas City, Mo. • Tel. Victor 2369

Mississippi LPGA Holds Annual Meeting

The Mississippi Liquefied Petroleum Gas Dealers Association held its annual business meeting in Jackson at the Heidelberg hotel recently, with over 100 dealers and suppliers from all over the state attending.

The meeting was called to order by President H. H. Whitworth of Oxford. The first session featured committee reports and an address by Earl Gammage, Houston, on the "Pan American Casualty Insurance Co.'s Plan for L. P. gas Dealers."

Guest speaker for the luncheon held on the Heidelberg roof was Richard Dorman, director of the motor-vehicle comptroller's office.

Oil Men's Association Changes Address

South Dakota Independent Oil Men's Association has moved from Yankton to Sioux Falls, according to an announcement made by E. Klein Graff, Secretary. The new mailing address will be P. O. Box 486.

Educational Sub-Committee To Expand Program

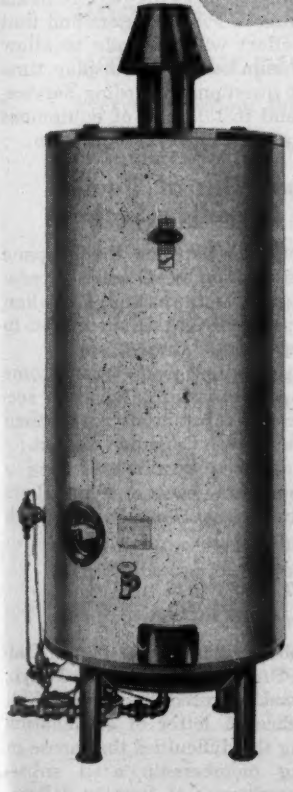
Acting to broaden the scope of the LPGA educational program, the educational sub-committee met in Chicago recently to prepare plans for the expanded program.

Chairman Roy Johnson, Fuelane Corp., Liberty, N. Y., announced that details of the new program will be presented to the LPGA board of directors at their next meeting for their consideration and approval.

The general plan embodies a home-study course to L. P. gas service. The committee recognizes the ever-increasing demand for proper training and education of industry personnel and hopes to meet this demand with these courses of study.

It is not anticipated that the cur-

What Capacity!



UTILITY CIRCULATOR MODEL Automatic Gas Water Heater

Fits the job and helps you get it! Install Utility's large-capacity Circulator where the demand is for clear hot water and lots of it. Designed for commercial service, the Circulator is efficiency-engineered by Utility for high recovery and long life. It's always in hot water—because of features like these • **self-contained storage capacity** • **multiple circulating flues** • **inner tank circulators** • **rust-eliminating Utility Kem Rod** • **convenient clean-out opening** • **50, 75 and 100 gallon sizes to operate as independent units or as booster heaters**

Dependable Utility water heaters can make friends for you on all your jobs—commercial and domestic. See your Utility water heater jobber or distributor or write for information on the full-model line.

GAFFERS & SATTLER And OCCIDENTAL
Automatic Gas Ranges

UTILITY
Furnaces • Air Conditioners
Air Coolers • Water Heaters

UTILITY
TRADE MARK
AUTOMATIC GAS WATER HEATERS

UTILITY APPLIANCE CORP. 4851 S. Alameda St., Los Angeles 58, Calif.

How to render "all-out" service to 9000 accounts

. . . with a fleet of 9 trucks!

The Answer:

In 1953, Suburban Propane Gas Corporation added a mobile radio system to its "mobile gas mains" serving some 9,000 accounts in its Mahwah, N. J., branch. To relay service requests to trucks and to receive requests from drivers, RCA Fleetfone 2-Way Radio was installed in 3 tank trucks, 2 cylinder delivery trucks and 4 general purpose trucks.

"I was quite certain radio could help our business," says President Mark Anton, "and results seem to be confirming my hunch. Our men who use radio have found it saves them considerable time and increases our service to customers."

Suburban Propane drivers are so proud of their radio they demonstrate it to customers. It generates the feeling that the company is going "all-out" to render service and helps promote good will.

Regardless of the size of your operation you will be pleased with the extended coverage and time savings RCA Fleetfone 2-Way Radio makes possible. It's always on the job, soon pays for itself out of savings—will pay you dividends.

RCA 2-Way Radio is a quality product, precision-made to assure top performance in all climates. A rugged 16-gauge steel case houses the compact transmitter-receiver for protection against all road hazards. Operation cost is low. And remember, the RCA Service Company is at your service wherever you are. Why not get more information?

For the Best in 2-Way, Say "RCA"

RADIO CORPORATION of AMERICA

COMMUNICATIONS EQUIPMENT, CAMDEN, N. J.

USE THIS HANDY COUPON FOR LITERATURE

Radio Corporation of America
Dept. M-204, Building 15-1
Camden, N. J.

In Canada: RCA VICTOR Company Limited, Montreal

☐ Please send free literature ☐ Have Communications Specialist call

Name..... Title.....

Company.....

Address.....

City..... Zone..... State.....

rent program of sponsoring short courses at the dealer level will be discontinued, but rather it will act as a supplement to the proposed home study courses.

"Get 5 in '55" to Obtain New Kentucky Members

Two methods of obtaining new members for the Kentucky LPGA were approved recently by the board of directors. These include a program of personal calls or letters to non-members of the association, and a series of articles in the association paper.

The articles will set forth the benefits of the association to Kentucky L. P. gas industry members.

A slogan, "Get Five in '55," was adopted by the committee, with the aim of having each committee member secure five new members.

Indiana to Meet February 14-15

Tom Crowden, president of the Indiana LPGA, announces that the association trade show and annual convention will be held February 14-15 at the Claypool hotel, Indianapolis.

Convention Chairman Harold Ten-Brook of the Ready Flame Co., Kokomo, says that the trade show will be planned to meet the requirements of Indiana L. P. gas dealers and that every effort will be made to allow a maximum amount of display time so that questions regarding service, sales, and installation of equipment can be given proper consideration.

Propane Gas of Quebec Joins Canadian Section

Negotiation between the Propane Gas Association of Quebec, a provincial group in the eastern Canadian section, and LPGA have resulted in an integration of these groups.

The provincial group will become a part of the eastern Canadian section and will substantially strengthen LPGA's Eastern Canadian district.

The Quebec group maintains a membership in excess of 40 members and is headed by Henri Panet, Quick Propane Gas Co.

Tokyo L. P. gas Firm Joins LPGA

Membership in LPGA of the Dai-Nippon Propane Gas Co. Ltd., Tokyo, Japan, has been received by the Chicago office. A letter of explanation covering the difficulties that arose in securing membership and subsequent remittance of dues, in dollars, accompanied the membership form.

NEW CHEVROLET TRUCKS

engineered and designed with your profit in mind!

Everything about these new Chevrolet trucks spells *profit!* Their low cost, their stamina and dependability, even their traditionally higher resale value!

COST LESS TO BEGIN WITH

That's right, Chevrolet brings you America's lowest-priced line of trucks—so you save right from the start. The beauty of it is, you go right on saving! With the high compression ratio of Chevrolet's three great engines, you register more miles on the job for each tankful of gas. You can count on fast starts; easy pulling up steep grades. You stay on schedule and keep the profits coming in *on time!*

COST LESS TO MAINTAIN

That's because of the rugged strength and stamina engineered into every new Chevrolet truck. They stay on the job longer (actual owner reports prove it!), cutting your maintenance costs right to the bone. Look over the many advance-design features in the next column and you'll begin to see why.

Your best bet is to talk trucks with your Chevrolet dealer. He'll tell you all you want to know about these Chevrolet profit-makers! . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

CHEVROLET

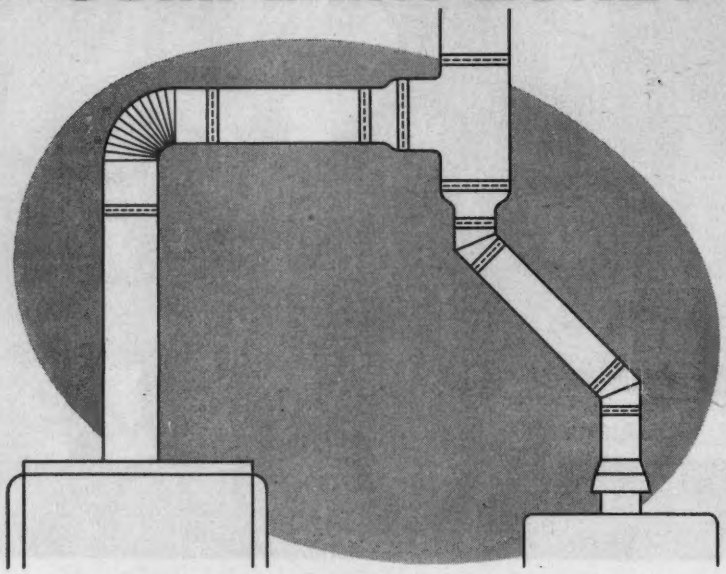
CHEVROLET ADVANCE-DESIGN TRUCK FEATURES

THREE GREAT ENGINES—The "Jobmaster 261" engine* for extra heavy hauling. The "Thriftmaster 235" or "Loadmaster 235" for light-, medium- and heavy-duty hauling. **TRUCK HYDRA-MATIC TRANSMISSION***—offered on ½-, ¾- and 1-ton models. Heavy-Duty **SYNCHRO-MESH TRANSMISSION**—for fast, smooth shifting. **DIAPHRAGM SPRING CLUTCH**—positive-action engagement. **HYPOID REAR AXLE**—for longer life on all models. **TORQUE-ACTION BRAKES**—on all wheels on light- and medium-duty models. **TWIN-ACTION REAR WHEEL BRAKES**—on heavy-duty models. **DUAL-SHOE PARKING BRAKE**—greater holding ability on heavy-duty models. **RIDE CONTROL SEAT***—eliminates back-rubbing. **LARGE UNIT-DESIGNED PICKUP AND PLATFORM STAKE BODIES**—give trip-saving load space. **COMFORTMASTER CAB**—offers greater comfort, convenience and safety. **PANORAMIC WINDSHIELD**—for increased driver vision. **WIDE-BASE WHEELS**—for increased tire mileage. **BALL-GEAR STEERING**—easier, safer handling. **ADVANCE-DESIGN STYLING**—rugged, handsome appearance.

**Optional at extra cost. Ride Control Seat is available on all cabs of 1½- and 2-ton models, standard cabs only in other models. "Jobmaster 261" engine available on 2-ton models, truck Hydra-Matic transmission on ½-, ¾- and 1-ton models.*

Is this your

"COMPLAINT ZONE?"



Is this critical venting area between gas appliance and main vertical vent causing you complaints — complaints about property damage and unhealthy conditions? Is it causing costly repairs or frequent replacement of rusted out vent pipe? It could be — if you're installing a single-wall, uninsulated vent connector that invites excessive heat loss and often results in condensation or spillage.

THE SOLUTION: USE METALBESTOS

Be sure that **both** the connector and main vent are Metalbestos. This double-wall, **insulated** vent pipe conserves the vent gas heat and assures safe, complete removal of all vent gases and the water vapor they contain. Use Metalbestos for your next job and eliminate customer complaints.

METALBESTOS CUTS LABOR COSTS

Metalbestos offers big savings in installation time because it's easy to handle, quick to assemble. Adjustable fittings eliminate costly cutting and fitting. No cementing is required — no heavy bracing needed. Figure your next bid with Metalbestos for a better job at a low **installed** cost — a job that assures customer satisfaction.

USE METALBESTOS — *it costs less to be sure with the best.*

Listed by Underwriters' Laboratories, Inc. as a Type B vent for use with approved gas appliances.

METALBESTOS DIVISION
WILLIAM WALLACE COMPANY · BELMONT, CALIF.

Stocked by principal jobbers in major cities. Factory warehouses in Atlanta, Dallas, Philadelphia, Des Moines, Chicago, New Orleans.

Red Jet **WEED CONTROL BURNER**

USES LIQUID L. P. GAS — The Most Economical Burner Yet Designed.

- Uses Full Tank Pressure.
- Throws Flame 8 to 12 Feet.
- Flame Temperature 2500 Degrees, Plus.
- Burns 12 to 25 Gallons Per Hour.

The RED JET Has Many Applications in Farm, Commercial and Industrial Uses!

- Kills All Annual Weeds.
- Kills Insects — Destroys Their Eggs.
- Prevents Reseeding.
- Decreases Labor Cost in the Fields.

Manufactured by **Northwest Fabricators, NYSSA, OREGON**

CALENDAR

Coming events in the Industry

1955

JANUARY

Jan. 22—Texas Butane Dealers Association. Mid-winter membership meeting, Austin and Driskill hotels, Austin.

Jan. 24-25—Michigan LPGA. Winter convention, Pantlind hotel, Grand Rapids.

Jan. 27 — NFPA. Board of directors meeting. New York.

Jan. 27-28 — Fourth Annual Instrument Short Course. Los Angeles Harbor Junior College, Wilmington, Calif.

FEBRUARY

Feb. 8-10 — East-Central District, LPGA. Convention and trade show, Convention Hall, Philadelphia.

Feb. 14-15—Indiana LPGA. Annual convention and trade show, Claypool hotel, Indianapolis.

Feb. 24-25—Eastern Canadian District LPGA. Convention, Mount Royal hotel, Montreal, Quebec, Canada.

APRIL

April 4-6—Southeastern District LPGA. Convention and trade show, Boca Raton hotel, Boca Raton, Fla.

April 13-15—Natural Gasoline Association of America. Annual convention, Baker and Adolphus hotel, Dallas.

April 14-15 — South Dakota LPGA. Convention, Marvin Hughitt hotel, Huron.

April 17-19 — Western Liquid Gas Association. Annual convention, Hacienda hotel, Fresno, Calif.

MAY

May 1-4 — Liquefied Petroleum Gas Association. Annual convention and trade show, Conrad Hilton hotel, Chicago.

May 16-20—National Fire Protection Association. Meeting, Netherland Plaza, Cincinnati.

May 23-25—Gas Appliance Manufacturers Association. Meeting, Ambassador hotel, Los Angeles.

JUNE

June 6-15—Fourth World Petroleum Congress, Rome, Italy.

June 22-24 — Texas Butane Dealers Association. Tenth annual convention and trade show, Adolphus and Baker hotels, Dallas.

All associations are invited to send in dates of their forthcoming meetings for this calendar.

30-SECOND SALES CLINCHERS

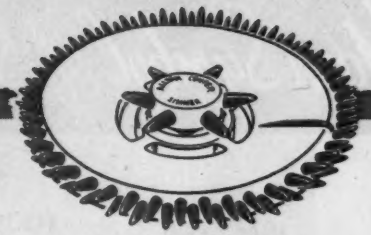
You can sell more gas ranges...quicker... easier...by demonstrating advantages of

ALLTROL® CENTER SIMMER BURNERS

It's a fact... an interesting demonstration can build up a desire for that beautiful new gas range faster than anything. Shoppers are often callous to conversation... lend dull ears to your finest sales talk, but a pointed 30-second demonstration can open their eyes—and purses! So be sure you have a gas range with Alltrol Center Simmer Burners, connected to gas and ready to show—and sell. A 30-second demonstration can sell more than a thousand words!

FREE BOOKLET. Write today for your free copy of "HOW TO SELL MORE GAS RANGES." It illustrates and explains the use of a dozen quick demonstration ideas for getting more sales.

® Trade Mark Reg. U. S. Pat. Office



Instant Full Flame... brings foods to cooking temperature in shortest time.

A full range of intermediate heats when wide spread of heat is needed.

"Click"... efficient Center Simmer maintains boiling in any covered utensil.

"Click"... gentle "Keep Warm" heat... keeps foods perfect for serving without further cooking.

ALLTROL CENTER SIMMER

HARPER-WYMAN COMPANY

Dept. 15B • 8562 Vincennes Avenue • Chicago 20, Illinois

ORIGINATORS OF CENTER SIMMER BURNERS

The Trade

News of personnel of manufacturers, contractors, and suppliers to the LPG industry.

Holmes, Beard Appointed To Master Tank Sales

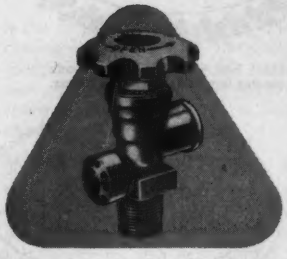
S. O. Weempe, Master Tank & Welding, Dallas, has announced through A. V. McMurray, sales manager, the appointment to the sales force of Bill Holmes, formerly of Agricultural Chemical Equipment Co., Dallas.

N. O. Beard, who has served the company in various capacities, has been transferred to the sales department.

For a time, Bill Holmes was associated with Gambill Distributing Co. of Nashville, Tenn. He also operated his own LPG business for two years at Humboldt, Tenn. He has been associated with Anchor Petroleum Co. of Tulsa.

In his new capacity, Mr. Holmes will specialize in the sale of LPG and anhydrous ammonia tanks and transports. Nick Beard will specialize in the sale of LPG tanks and transports.

Your Symbol of Safety VSF

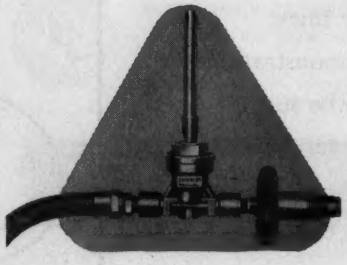


1032B—*Cylinder Valve*

Designed for vapor withdrawal but variations for liquid withdrawal and with fixed liquid level gauges are available. Safety discharge capacity over 700 CFM at 480 PSI discharge pressure. Fast filling.

1415—*Quick-Acting Charging Line Valve Assembly*

Trip lever action gives you quick, positive opening and shut-off. Quick-coupler with neoprene nose seat for quick assembly and disassembly. Two-ply, heavy-duty neoprene charging hose and re-usable stems and ferrules on hose ends.



1045—*Bulk Storage Cylinder Valve*

Standard shut-off with POL outlet, ¾" inlet; both spring loaded and fuse metal safety devices; standard filler connections (1¼", 1¾" Acme thread or POL); rapid filling rate; finger operation on knurled nut for volume filling.

Superior valve & fittings co.

1509 West Liberty Avenue

Pittsburgh 26, Pa.

L. W. Rasch to Be Temco Central Heating Manager

Lee W. Rasch

Lee W. Rasch, formerly president of Rasch Manufacturing Co., Kansas City, Mo., has been appointed manager of the central heating division of Temco Inc., Nashville, Tenn.

Mr. Rasch's experience dates back to 1925, when he joined American Gas Product Corp. in New York as a testing engineer. In 1946 Mr. Rasch became vice president of Security Manufacturing Corp. in Kansas City. In 1953 he joined the newly organized Rasch Manufacturing Co. as vice president.

Temco also announces the addition of a complete line of central heating equipment. Air conditioning units ranging from two- to five-ton capacity will also be introduced for use with the central heating units or as individual units.

Butler Directors Name John Morgan, Walter Smith

Directors of Butler Manufacturing Co. have named John A. Morgan to the newly created post of executive vice president. Walter L. Smith was elected vice president, engineering and production. The announcement was made by Oscar D. Nelson, president.

In his new position, Mr. Morgan

Walter L. Smith

John A. Morgan

PREST-O-LITE
Trade-Mark
CYLINDERS
for LP-Gas
are your best buy

Data remains easy to read throughout life of the cylinder. Large characters are deeply cut into an extra thick, wide flange on 60-lb. and 100-lb. capacity cylinders (into valve protecting head ring of 20-lb. and 40-lb. styles).

Superior anti-rust coating protects the cylinder bottom and interior of footring against corrosion—a valuable extra at no additional cost to you!

When it comes to LP-Gas cylinders, your wisest, most economical investment is in the PREST-O-LITE Brand. For PREST-O-LITE Cylinders combine unsurpassed quality, low cost, and attractive appearance to satisfy the exact needs of LP-Gas users everywhere.

PREST-O-LITE Cylinders are rugged and sturdy for long, dependable service life. They're lightweight for easier handling at lower expense. Factory testing is in excess of requirements to assure maximum safety and performance. Every PREST-O-LITE Cylinder is deep-drawn to extremely uniform wall thickness. Durable aluminum enamel protects the cylinder finish indefinitely and reduces repainting costs.

For further information write or 'phone your nearest LINDE Office today. Ask for free booklet F-8187.

PREST-O-LITE *Cylinders are available in the popular 20-lb., 40-lb., 60-lb. and 100-lb. capacity sizes, with or without valves. Other styles can be made to order.*

The terms "Linde" and "Prest-O-Lite" are registered trademarks of Union Carbide and Carbon Corporation.

LINDE AIR PRODUCTS COMPANY
A Division of Union Carbide and Carbon Corporation
30 East 42nd Street UCC New York 17, N. Y.
Offices in Other Principal Cities
In Canada: DOMINION OXYGEN COMPANY, LIMITED, Toronto

will help direct the over-all activities of a company which has more than 3000 employes, with general offices and a plant in Kansas City, Mo., and other plants in Minneapolis; Galesburg, Ill.; Richmond, Calif.; Birmingham, Ala., and a subsidiary, Union Truck & Supply Co., Houston, Texas.

Mr. Smith joined the Butler organization in 1934 as a product engineer in the stocker division. He progressed through various engineering responsibilities and, in 1939, was named chief engineer of the company.

He was elected to the board of directors in 1947 and was appointed chief production manager in which capacity he has directed all engineering and production work during the period of expansion of the company's plants and operations.

The election of Mr. Smith to his new position recognizes his role as the senior production engineering executive of the company.

McMurray Returns to Refinery As Cities Service Manager

S. R. McMurray ,who has been on special assignment in the Bartlesville office of Cities Service Oil Co., has returned to Ponca City, Okla., as manager of the Cities Service refinery there, according to an announcement by W. T. Cravens, vice president and manager of refining.

D. R. McConnohie, who was plant manager during Mr. McMurray's assignment in Bartlesville, is being transferred to the company's East Chicago, Ind., refinery on special assignment.

C. W. Rohler is the newly appointed chief process engineer at the Ponca City refinery.

WHY **HOLD BACK** YOUR SALES OPPORTUNITIES?

FAC *installment sales financing can help you move ahead if you are a manufacturer of LP gas equipment*

If you are a vigorously competing manufacturer in the LP gas equipment industry, there is no need for you to be *held back* for want of an installment selling program.

First Acceptance Corporation can help you reach more prospects and sell more of your product with an installment sales program tailored to meet your special needs. Our plan will also enable you to meet the increasing demands of your present customers.

Do you manufacture the following equipment?

Cylinders • LPG domestic systems • Bulk storage tanks • Trailer transports • Truck transports • Anhydrous ammonia equipment

If you do, then FAC's facilities can help you.

First Acceptance Corporation operates nationally and is thoroughly familiar with industry problems. We are pioneers in this type of installment financing.

For a complete proposal of the financing services that FAC can make available to you, please write or telephone today. Your inquiry will receive prompt attention.

FAC Plan

FIRST ACCEPTANCE CORPORATION

Minneapolis, Minnesota • 820 Northwestern Bank Bldg. • Main 4451

Discount Bankers Serving Manufacturers of LP Gas Equipment

Calor Gas Co. Appoints D. S. McNary Vice President

Donald McNary

Robert E. Maloney, president of Calor Gas Co., San Francisco, has announced that Donald S. McNary will assume the administrative duties of vice president. Richard M. Bond replaces Mr. McNary as manager of the marketing department.

Charles Donner, formerly assistant manager of the northwest division, replaces Mr. Bond as manager of the northwest division with headquarters in Spokane, Wash.

Calor is a large marketer of L. P. gas, serving the 11 western states, British Columbia and Alberta, Canada.

Charles Donner

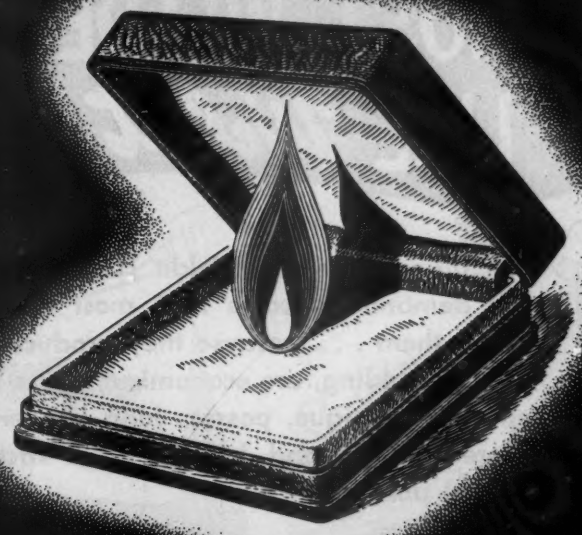
Richard Bond

Norge Appoints Ray Dau As Advertising Assistant

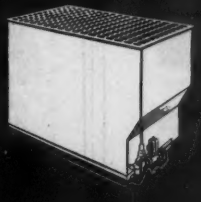
Appointment of Ray S. Dau as assistant to the director of advertising of the Norge division of the Borg-Warner Corp., home appliance manufacturer, Chicago, is announced by Robert J. Runge, director of advertising.

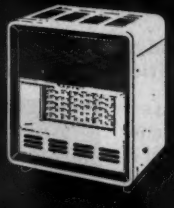
Mr. Dau was formerly district range supervisor for the major appliance division of Westinghouse Electric Corp. with headquarters in Chicago.

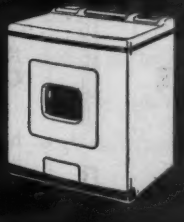
Appointment of Mrs. Glena Pierce as a home economist by the Norge



the meaning of quality . . .







Quality and Temco are two words that are bracketed together in the minds of most gas appliance dealers and purchasers. And for a very good reason.

For 30 years Temco has aligned its research, engineering, and production with quality standards. To us, quality means more than "good." It means the best.

At Temco quality means the finest materials, the best craftsmanship, the most skilled personnel obtainable—producing more than 1½ million of the finest gas appliances made. In a word, *quality means Temco.*

TEMCO, inc.

NASHVILLE, TENNESSEE

Builder of over 1½ million gas appliances

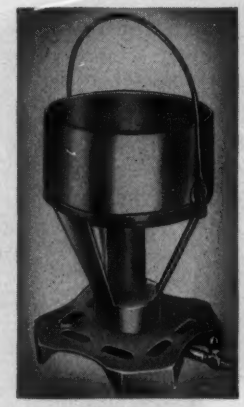
MOST WELDERS LIKE *Weldit!*

WELDIT WELDING EQUIPMENT SUPPLIES

Not all welders like Weldit TORCHES, but the demand indicates that most welders prefer them . . . because they produce top quality welding, are economical, cause less operator's fatigue, possess long life, engineered design and backed by a factory service policy.

HISTORY OF WELDING

In jewelry shops during the Italian Renaissance, artisans used small blow-pipes to weld chalices and vessels of gold and silver. This method is known as the autogeneous process of welding.



WELDIT L-P PLUMBER'S FURNACE

A new Weldit L-P Plumber's Furnace for plumbers and Tinsmiths. This Furnace can be converted to floor or tank top use, melts lead, babbitt, solder, tar, asphalt or paraffin. Generates over 65,000 B.T.U. fast and economically.

MODEL C-47W

WELDIT BLOWPIPE

This Weldit Torch is designed for soldering, annealing and heating jobs . . . for operating on either natural or manufactured gas or other low temperature fuel gas and compressed air . . . rugged construction, will stand up under unusually hard shop use . . . built by Weldit in accordance with recommendations of a large fabricator of sheet metal products.

Canadian Distributor: Alloy Metal Sales. 181 Fleet St., E., Toronto 5, Ontario, Canada.

Weldit INC. SINCE 1918

990 OAKMAN BLVD. DETROIT 38, MICHIGAN

division is announced by Mrs. Jessie Cartwright, director of the Norge home institute.

Appointment of Raymond E. Miller as sales promotion manager of the dealer department is announced by Jack Pettersen, director.

In this position Mr. Miller will be responsible for developing national Norge appliance promotions as well as campaigns tailored to specific local markets.

P. H. Frazier Appointed Bagwell Design Engineer

Roy Gafford, partner in the firm of Bagwell-General Steel Co., Sapulpa, Okla., announces the appointment of P. H. Frazier as design engineer.

For two years Mr. Frazier was associated with Born Engineering Co. of Tulsa as design engineer. He also operated his own design-engineering company for a two-year period. Prior to this time he was associated with the engineering department of the government.

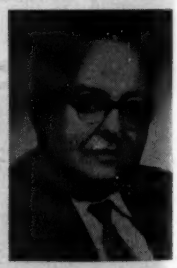
In his new post Mr. Frazier will have charge of engineering and design work for pressure vessels, LPG transports, truck delivery units and other products.

Robertshaw-Fulton Ltd. Elects John Robertshaw

The board of directors of Robertshaw-Fulton Controls Ltd., Canada, recently formed subsidiary of Robertshaw-Fulton Controls Co., has elected John A. Robertshaw, president; George A. Elliott, vice president and general manager; Walter H. Steffler, secretary and treasurer; B. D. Taylor, comptroller; and H. William Biggar, assistant secretary and assistant treasurer.

Messrs. Robertshaw, Steffler and Taylor hold similar positions with the parent firm, whose headquarters are at Greensburg, Pa.

Krause, Reedy, Griese Change Positions at Detroit



N. B. Krause

N. B. Krause has been made assistant to the president of the Detroit-Michigan Stove Co., Fred A. Kaiser, president, announces.

Mr. Kaiser also announces that Bert D. Reedy has been named factory manager, and Herman L. Griese plant super-

"You can't beat this Sinclair hand"

The deck is definitely stacked in your favor when you deal with Sinclair. Every tank-load of SINCLAIR LP-Gas puts you out front with the five famous Sinclair extras – INTEGRITY, REPUTATION, QUALITY, PERFORMANCE and GOOD SERVICE. You get the kind of a hand that adds up to more satisfied repeat customers – and a faster-growing, more profitable business for you.

Find out about this top quality LP-Gas with high heating value – with moisture and impurities removed... then, switch to Sinclair, soon.

SINCLAIR a great name in oil

SINCLAIR OIL & GAS COMPANY

Liquified Petroleum Gas Sales Department • Sinclair Oil Building, Tulsa, Okla.

intendent. All are veteran employes of the Detroit stove firm.

Mr. Krause, who formerly was assistant secretary and assistant treasurer, joined the company in 1911 as office boy, and has served in executive positions in the cost accounting, planning and scheduling departments.

Mr. Reedy becomes factory manager after serving for several years as superintendent, and Mr. Griese becomes plant superintendent after 26 years with the company.

Ohio Injector Names Verland Belt, Norman Malone

Verland W. Belt has been named general superintendent and Norman A. Malone chief manufacturing engineer of the Ohio Injector Co. at Wadsworth, Ohio, the firm's administrative vice president, Harry G. Smith, has announced.

Mr. Belt, who was with Dresser Industries Inc. and Affiliated Gas Equipment Inc. before coming to OIC, will be responsible in his new job for all production activities, including assembly, testing and work schedules.

Rockwell Promotes Madison, Reorganizes Midwest Setup

C. K. Madison

Rockwell Manufacturing Co.'s meter and valve division is reorganizing its entire midwestern sales setup to provide for increased service to customers throughout that section, L. A. Dixon Jr., vice president, states.

As a first step, Carl K. Madison, midwestern regional manager, has been promoted to vice president in charge of new product sales for the entire division, and the midwestern sales region has been divided into two new regions—a southwestern and a smaller midwestern region.

Roy R. Bush, Tulsa, district manager, has been named midwestern regional manager with headquarters at Tulsa, and W. R. McLaughlin, manager of the Dallas office, becomes southwestern regional manager with headquarters at Dallas.

Griffith to Assist Ray At General Controls Co.

J. B. Griffith

J. B. Griffith has been appointed assistant to J. F. Ray, vice president in charge of sales for General Controls Co., Glendale, Calif., it is announced.

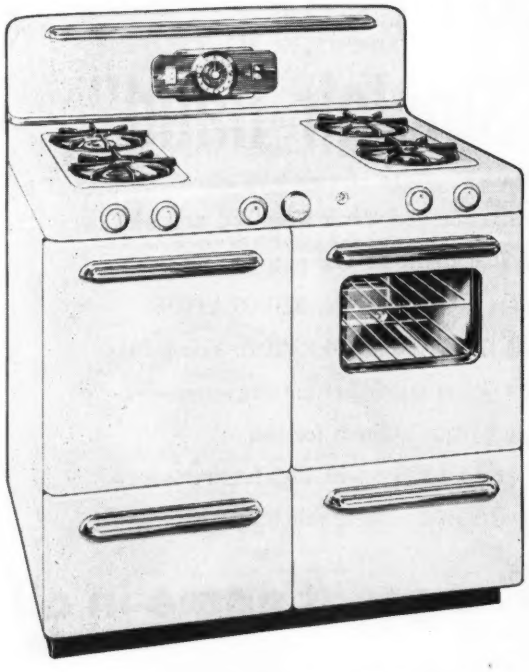
In this capacity, Mr. Griffith's responsibilities will be primarily in the field of customer service for this manufacturer of automatic controls. He has had nearly two decades of experience in the design, sale, and manufacture of heating and air conditioning devices.

Trade Notes

George D. Roper Corp. announces the appointment of *G. Albert Rhimer* to the position of Philadelphia district manager. He will be responsible for the company's activities in Philadelphia and the adjacent Pennsylvania counties of Bucks, Montgomery, Chester and Delaware.

Enterprise

mark it up more...
still sell it for less...
THAN ANY COMPARABLE RANGE



YOU GET A BIGGER MARK-UP on this Enterprise deluxe 38" CP automatic gas range than you get on any comparable range . . . yet you still sell it for less!!

COMPARE THESE FEATURES with anybody's. Full automatic . . . clock-controlled oven and appliance outlet . . . waist-high broiler . . . double-glass sweat-proof oven window . . . lifetime guaranteed top burners . . . lifetime porcelain enamel, inside and out . . . one-piece welded chassis . . . non-glare cooktop lighting!!

CONTROL YOUR OWN MARK-UP . . . give yourself plenty of room for trading . . . offer "big name" value for a lot less money . . . with ENTERPRISE!!

WRITE TODAY FOR FULL INFORMATION

Serving a value-conscious America for nearly 100 years

PHILLIPS & BUTTORFF MANUFACTURING COMPANY
NASHVILLE, TENNESSEE

Right track to faster service, greater LP-Gas profits

Here is part of the greatly enlarged, self-owned and operated Cities Service tank car fleet . . . one of the reasons why Cities Service LP-Gas customers always enjoy fast, dependable delivery. Equally important are the 19 modern producing plants and storage wells that assure consistently highest product quality . . . quality that creates satisfied consumers, greater profits for distributors of Cities Service LP-Gas. To learn all the facts, contact your nearest Cities Service office.

CITIES SERVICE
OIL COMPANY

406 W. 34th Street
Kansas City, Missouri

500 Robert Street
St. Paul, Minnesota

20 No. Wacker Drive
Chicago, Illinois

6611 Euclid Avenue
Cleveland, Ohio

W. S. Degarimore has returned to *Perfection Stove Co.* in the capacity of district representative for the heating and air conditioning division in the states of Oklahoma and Texas.

Mallinckrodt Chemical Works' President Joseph Fistere has announced three promotions in the sales department. *G. C. Bradshaw* was made director of sales research, *Walter S. Keutzer* named western division sales manager, and *Warren F. Michener* appointed assistant western division sales manager.

Joseph B. Inferrera has been appointed executive engineer of *Worthington Corp.'s* Wellsville, N. Y., plant, it was announced by L. E. Hammer, works manager. Mr. Inferrera was formerly chief mechanical design engineer.

Lux Clock Manufacturing Co., Waterbury, Conn., has announced the appointment of *Eugene T. Crandall*, former district sales manager in the Midwest, as industrial sales manager. Succeeding Mr. Crandall as sales representative is *Frank Palfrey*.

Levin P. Handy has been appointed area field engineer of the Anaheim, Calif., division of *Robertshaw-Fulton Controls Co.* He has been assigned to the San Diego area.

Vincent Anderson, formerly assistant advertising sales promotion manager of *White Products*, has been appointed advertising sales manager. Mr. Anderson has been with the company five years.

Mary E. Williamson has joined the staff of *Magic Chef Inc.* as an assistant to Will T. Trueblood, director of advertising and promotion.

Carter

Carter

When you buy LP-Gas from Carter, you have the assurance of high quality and dependable service. Years of experience in producing and marketing LPG make Carter an unexcelled supplier.

THE CARTER OIL COMPANY
TULSA, OKLAHOMA

Edgar P. Delahunty

A heart attack has claimed the life of Edgar P. Delahunty. He was manager of the Suburban Propane Gas Co. of Pittsburgh, Pa.

He started to work for the Suburban Gas Co. 15 years ago and had his office in his living room. He trucked the gas from Belvidere, N. J. His business developed and he moved his office to Pittston.

Mr. Delahunty built the distributing plant and business office at North Main St., Pittston, in 1947.

Thomas H. Sykes

Thomas Holmes Sykes, 51, president and chairman of the board of the Suffolk Gas Corp., Suffolk, Va., a natural gas company, and owner and president of the Nansemond Gas Corp., an L. G. gas company, died unpectedly in Lynnhaven, Va.

The Nansemond Gas Corp. was formed in 1946 to supply L. P. gas to rural areas within the surrounding five counties. Since its inception eight years ago over 3500 rural customers have been served with "Q-Flame" gas service.

Nansemond Gas Corp. is now under the direction of Mr. Sykes' wife, Mrs. Viola S. Sykes, as president and general manager.

T. E. Gammage

Troupe Earnest Gammage Sr., Houston and Texas insurance company executive, died recently in Houston after a prolonged illness of several years. Mr. Gammage was founder and president of the Pan American Fire & Casualty Co. and Pan American Insurance Co. of Houston.

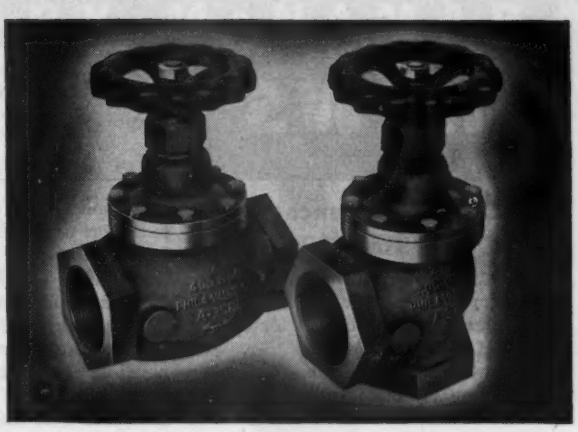
NEW GLOBE AND ANGLE PROPANE

Valves give 3 years'

NON-LEAKING

service

WITHOUT DISC REPLACEMENTS OR STUFFING BOX ADJUSTMENTS!

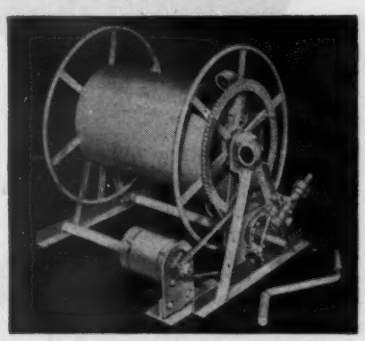


Patent applied for

That's the record of these Philadelphia Valve Company valves in everyday operation. Customers are amazed at their years of trouble-free service. That gives them a valid claim to being the finest propane valves ever used by the petroleum industry.

These propane valves will not leak at the stuffing box or anywhere else, due to unique stuffing box design. There is no diaphragm. Eliminating it and using a non-rising stem makes these valves extremely compact—an advantage in close quarters such as a truck tank manhole. Doing away with the diaphragm also lets the disc lift well up into the bonnet, leaving a clear passage for liquid. And the resilient-type disc seats tight, even when dirt particles are present. The stuffing box seal may be replaced under pressure if necessary.

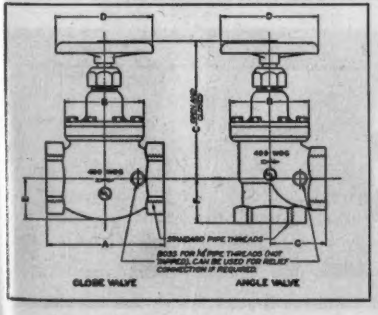
These globe and angle valves are designed for use in bulk plants, cylinder filling stations, industrial installations and truck tanks. Brass, cast steel and stainless steel models are available in regular or flanged styles. The valves—made in 1", 2", 2½" and 3" pipe sizes—are designed for 400 pounds working pressure. They can be furnished with Teflon or other special discs for use with chemicals and gases such as sulphur dioxide.



PROPANE HOSE REELS

These hose reels, with explosion-proof motors, listed by Underwriter's Laboratories, Inc., are ideal for propane handling. Lightweight and strong—every part of steel, malleable iron or brass. Cast iron is never used. Each has 6 ball bearings with hardened and ground races. The swing joint features uninterrupted passages and self-tightening seal, enabling it to withstand the toughest work loads.

PIPE SIZE	GLOBE VALVES		ANGLE VALVES		DIMENSIONS						
	Code No.	Wt.	Code No.	Wt.	A	B	C	D	E	F	G
1"	A-3665	5.2 lbs.	A-3814	4.8 lbs.	3⅜"	2¼"	5"	3⅜"	1⅜"	1⅞"	1¹³⁄₁₆"
2"	A-3581	14.1 lbs.	A-3761	13.1 lbs.	6"	3⅜"	6¼"	4½"	2⅛"	2¼"	2⅛"
2½"	A-3574	24 lbs.	A-3832	22.3 lbs.	7¼"	4⅜"	8⅞"	6"	2½"	2⅝"	3⅜"
3"	A-3471	34 lbs.	A-3833	31.7 lbs.	8"	5½"	9¾"	6¼"	3½"	3⅛"	3¹³⁄₁₆"



PHILADELPHIA VALVE COMPANY

ARAMINGO AVENUE AND EAST TIOGA STREET, PHILADELPHIA 34, PA.

Pacific Coast Distributors:

Oil Marketing Equipment Co., 325 Fremont Street, San Francisco 5, California
Howard Supply Co., 5125 Santa Fe Avenue, Los Angeles 11, California

NEWS

News and news notes about the activities of manufacturers, distributors and dealers.

LPG Credit Announces New Financing Plan

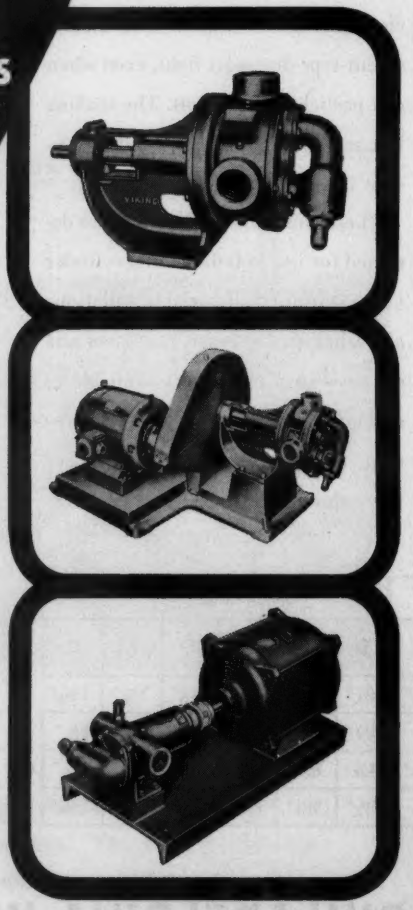
Announcement of a new plan providing for longer term financing of cylinder and tank purchases is made by LPG Credit Corp.

It is now possible to finance cylinders with or without regulator manifold assemblies, domestic tanks of all sizes and types, and bulk storage tanks on terms extending up to five years.

Morris H. Wright, president, states, "Our new five-year plan overcomes what up to now has been the real hindrance to a healthy and rapid expansion of the L. P. gas industry. Qualified dealers can now maintain adequate bulk and customer storage facilities with related equipment at only a minimum investment of working capital. Income realized from use of additional customer storage equipment can more than handle the installment payments."

34 VIKING LP-Gas Pumps from which to choose

PUMPS ALSO BUILT FOR ANHYDROUS AMMONIA SERVICE



Truck Mounting Models 28-38-70 GPM Sizes

The three sizes of Viking truck mounting pumps are all equipped with mechanical seal, O-ring gaskets, revolvable casing, safety valve on head and bearings requiring no lubrication.

Bulk Station Models 8-17-28-38-70-90 GPM Sizes

Twenty-eight bulk plant models and sizes from which to choose in the Viking line of LP-gas pumps—gear drive—V-belt drive—direct drive and unmounted types are available—all with features like the truck mounting units above.

Fueling Unit Models 10-12 GPM Sizes

Both a motor or engine driven fueling unit is available with mechanical seal, O-ring gasket, bearings requiring no lubrication, safety bypass valve and pressure safety valve.

VIKING AN HONORED NAME IN PUMPING

For complete information send for your catalog section Hb today.

See our Catalog in the BPN CATALOG

VIKING PUMP COMPANY Cedar Falls, Iowa

Anchor Offers Engineering Service to LPG Dealers

Anchor Petroleum Co. of Tulsa is now offering a complete engineering service to L. P. gas dealers on problems connected with their plants or installations, it was announced by W. A. Baden, president.

This new service, headed by R. S. LaScelle of Anchor's sales department, was developed as a result of dealer needs on special installations outside of the usual domestic requirements.

With this service Anchor will aid many dealers in providing L. P. gas as a cheaper and better fuel for a variety of industrial uses.

Mr. LaScelle has nine years of LPG experience. He has been with a wholesale L. P. gas organization, a retail dealership and an equipment distributing firm.

Grace, Cobbler Form Tank Fabricating Plant

Preston W. Grace and Joe Cobbler have formed a new tank fabricating plant, known as the Texas Manufacturing Co., at Gainesville, Texas, 60 miles north of Dallas. After four weeks of operation the firm achieved unit-a-day production.

Preston Grace established White River Distributors Inc. at Batesville, Ark., in 1945 and since then has supplied delivery units to LPG dealers. Mr. Grace also heads the Farmers Propane Co., operating in Jonesboro, Truna, and Leachville, Ark.

Joe Cobbler has been in the busi-

Preston Grace

Joe Cobbler

TAILOR MADE BY McNAMAR

Financing is NO problem . . .

McNamar can solve your financing problems on both storage and domestic tanks . . .

For example, McNamar can give you tanks based on a six month payout plan, a ninety day billing, and McNamar also has a three to five year lease plan available . . .

We can assure our dealer not only a competitive price, a quality product, but also assistance with any problems that might confront him in future years . . .

McNamar dealers are always competitive.

The PERFECT tie-in . . .

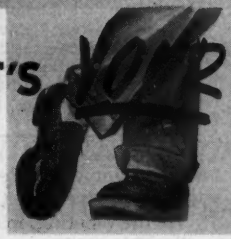
McNamar stands on its record of performance to give you the best tank money can buy . . .

Anywhere McNamar can save you money by truck or by F.I.T. shipment . . . Take a look at these outstanding features . . .

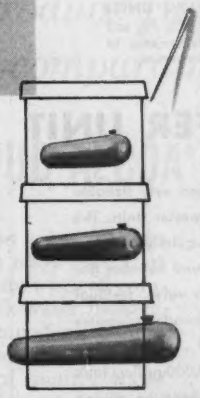
- UL approved on all standard sizes
- ASME 250 lb. working pressure meets and exceeds all requirements of U-69
- Three liquid lines (Built in excess flow).

See McNamar before you buy.

WHAT'S YOUR SIZE?



Name your size and McNamar has it. Whether it's a 115 gallon to 1000 domestic system or a 6000 to 30,000 gallon storage tank, we can meet your requirements . . . for size . . . quality of workmanship . . . speed of delivery . . . *You can depend on McNamar.*



Styled for you!

The skillful engineering design that goes into every McNamar tank unit combines "Quality" with the other advantages you need for a dependable operation. Every tank is custom-balanced to the truck it's built for. Single or twin barrel — McNamar is your best buy . . . Send us your specification and we will submit quotations . . .

McNAMAR TULSA

McNAMAR

BOILER & TANK CO.

BOX 868 • TULSA, OKLAHOMA

ness of making L. P. gas tanks since 1941. Through his experience as a gas distributor he has had close touch with the industry's problems.

The Texas Manufacturing Co. plant is a large steel structure situated on a 30-acre site. The plant is specializing in delivery units which are assembled on trucks at both the Gainesville plant and the White River plant.

President Pew Cites Promotion Council's Work

The National Council for LP-Gas Promotion, meeting recently at the Conrad Hilton hotel, Chicago, re-

As members of the executive committee look on, James E. Pew, Sun Oil Co., Philadelphia, president of National Council for LP-Gas Promotion, cuts birthday cake in celebration of the council's fifth anniversary. Seated are Kenneth R. D. Wolfe (right), Fisher Governor Co., Marshalltown, Iowa, chairman of executive committee, and C. J. McAllister, Parlett Gas Co., Waldorf, Md., council vice president. Standing are (from left) George P. Bunn, Phillips Petroleum Co., Bartlesville, Okla., vice president; Robert E. Borden, LP-Gas Information Service, Chicago, secretary; Julius Klein, Caloric Stove Corp., Philadelphia, vice president; Herman Merker, Pressed Steel Tank Co., Milwaukee, vice president; Mr. Pew; A. H. Cote, Suburban Propane Gas Corp., Whippany, N. J.; and Charles O. Russell, Rapid Thermogas Co., Des Moines.

elected James E. Pew president for the coming year.

At the meeting, marking the council's fifth anniversary, Mr. Pew outlined some of the promotion activities of the group during the past five years.

The council, organized in 1949, has bought over 1⅓ billion sales messages in national and regional magazines. It has placed much additional information with magazines, newspapers, radio and television stations.

According to Mr. Pew, the council is at present working closely with its new agency, McCann-Erickson Inc., on a new advertising campaign, to be launched in February or March. The agency has worked out a new media list and schedule, which will give greater frequency, continuity and impact to advertising than has been achieved in the past.

In citing current publicity for L. P. gas, Mr. Pew mentioned the four-page article which appears in the January issue of *Woman's Home Companion*, a magazine having a circulation well over 4 million and a readership three times that large. The article deals with an Illinois couple who have built a home, doing a lot of the work themselves, and equipping the house completely with L. P. gas appliances and equipment.

How much will YOU save?

SLOW SPEED

BRUNNER LPG UNITS are available in 5, 7½ and 10 H.P. models — easy to install, easy to service.

...with a

BRUNNER SINCE 1906 **LP GAS TRANSFER UNIT**

In bulk plants all over the country, operators report very sizeable gallonage savings with the use of Brunner LPG Transfer Units. The secret, of course, is that the Brunner Unit not only quickly transfers all liquid to the storage tank — but also removes and liquefies gas vapors in the tank car. With a simple turn of a valve, residual vapors in the tank car are removed down to recommended pressures of 15 to 20 lbs. per square inch. PAYS FOR ITSELF . . . the savings in time and gallons (up to 540 gallons from a 10,000-gallon tank car) soon pay for your Brunner Transfer Unit — keep on paying big dividends every time you use it.

WRITE FOR FREE BOOKLET *that shows how to set up a highly efficient "tank car to storage" transfer system — describes the many safety and long life features found in Brunner LPG Units.*

BRUNNER MANUFACTURING COMPANY
Dept. E-15, UTICA, N.Y., U.S.A.
The Brunner Co., Gainesville, Ga.
In Canada: Brunner Corp. (Canada) Ltd., Toronto, Ont.

BRUNNER BRUNNER ... *the name to look for on* **INDUSTRIAL GAS COMPRESSORS**

NEW! First and only water heater

...that cannot produce rust-discolored hot water, yet sells at prices comparable to lined-steel-tank types!

The sensational new RUUD ALCOA® ALLOY Automatic Gas Water Heater

Here's the kind of gas water heater you know you can promote profitably. A *solid aluminum alloy tank* that can't produce red-rust . . . in a quality unit priced competitively with ordinary lined-steel-tank water heaters.

Top quality—backed by the combined skills and resources of two top-rated names in their fields. RUUD . . . America's oldest manufacturer of quality water heaters, and ALCOA®. . . . world's largest producer of aluminum.

The new Ruud Alcoa Alloy is a fast-recovery unit that delivers more hot water faster, cleaner and longer than any other water heater, at or anywhere near its price. It safely stores water at 180° sanitizing temperature.

An optional convenience! Ruud duo-temp feature delivers two hot water temperatures from the same tank at the same time! 180° water to maintain a temperature of 160° in the automatic washer; 125° tap-safe water for bath, shower and lavatory.

® Aluminum Co. of America

ADVERTISED IN
The Saturday Evening
POST

Mail This Coupon Today!

The revenue-building Ruud Alcoa Alloy is Laundry-Rated to meet the critical hot water quantity and temperature demands of automatic clothes washers. Send for complete details today.

RUUD MANUFACTURING COMPANY
Dept. F-4, 2934 Smallman St., Pittsburgh 1, Pa.

☐ Please have a Ruud man call on me.
☐ Please mail further information on the new Ruud Alcoa Alloy Gas Water heater.

NAME_____ TITLE_____

BUSINESS NAME_____

STREET_____

CITY_____ ZONE_____ STATE_____

Even if it did cost as much as other Compressors —you'd still save money by getting a **CORKEN GOOD ONE**

MODEL NO. 290-107-33
$808.00
Manual Starter: $56.44
Magnetic Starter: $122.00

YOU ASKED FOR THESE FEATURES. CORKEN INCLUDES THEM.

Crankcase oil can't get into cylinder. No danger of pumping crankcase dry, or contaminating product.

Proportioned lubrication. You can see the oil fed drop by drop to the machine.

Positive shutoff. Trap prevents liquid slugging and damage to compressor.

CORKEN'S INC.

206 E. GRAND • OKLAHOMA CITY 2, OKLA.
TELEPHONE FOrest 5-3517

EASTERN OFFICE — 935 MADISON AVE.
PLAINFIELD, NEW JERSEY
PLainfield 7-1305

Distributors in Principal Cities

MEMBER LPGA

MEMBER National LP-Gas Promotion Program

Keep Up with L. P. gas Developments Each Month

BUTANE-PROPANE News

by subscribing to

198 SOUTH ALVARADO STREET, LOS ANGELES 57, CALIFORNIA

See Page 2 for Foreign Rates

☐ Check herewith ☐ Bill me ☐ 1 year $2.00 ☐ 2 years $3.00

Name_____ Title_____

Firm_____

Street_____

City_____ Zone_____ State_____

Another article, to appear in the February issue of *Household*, concerns an Indiana family which has a completely L. P. gas home.

Other examples of the council's work in putting LPG before the public are its activities in "Research Village" (see BPN, November, 1954, page 144); its work on the dream farm kitchen at the national plowing content in Olney, Ill. (see BPN, November, 1954, page 116); and the program it staged at the annual convention of the National Home Demonstration Agents Association (see BPN, December, 1954, page 142).

Mr. Pew mentioned the need felt by the council for a good membership drive, and an increase in monthly incoming revenues to put across its new advertising and publicity program.

In addition to the re-election of Mr. Pew as president of the council, Kenneth R. D. Wolfe, vice president, Fisher Governor Co., Marshalltown, Iowa, was re-elected as chairman of the executive committee and Robert Brandt, manager, L. P. gas sales, Cities Service Oil Co., Chicago, was re-elected treasurer. Robert E. Borden was reappointed secretary of the group.

Smith Appointed Chairman Los Angeles LPG Committee

H. W. Smith

The liquefied petroleum gas industry of California is now serving in the civil defense of the state, according to Harold W. Smith, president of American Liquid Gas Corp., Los Angeles.

Mr. Smith has recently been appointed to serve as chairman with a local L. P. gas regional committee. This committee will cooperate with all local civil defense officials in this area in planning civil defense programs so that the industry can more effectively serve the needs of the civilian population, should an extreme emergency ever occur.

Fair Trade Statute Before Arkansas Court

If the Arkansas supreme court decides that the 17-year-old fair trade law is unconstitutional, the ruling will have far-reaching effects on the mercantile business in the state. The decision is expected shortly.

The case came about because Preston Grace of Batesville lowered his

TWO GREAT NAMES...

THE MAYFLOWER

WASHINGTON, D. C.

Equipped with **GARLAND...**

THE GREATEST NAME IN COMMERCIAL COOKING!

All over the World—
Garland means Finest!

Internationally famous chefs team with Garland to maintain their well-earned reputations. Where cuisine is renowned —Garland is used to prepare it!

Whether the operation is large or small, chefs instinctively turn to Garland. There are reasons for such a vote of confidence! Garland has years ahead design—it's fast—it's flexible—it's durable! It's performance earns its title—Garland—the Line of the Leader!

EVERY SALE A DEALER SALE

Fired by Gas, the "Ideal Fuel" • Supplied by Washington Gas Light Company

NICHOLAS MARCHETELLI, CHEF DES CUISINE says "we average 5000 regular meals a day, plus banquets. Garland handles its part of the task flawlessly. That's why we use it. That's why we like it!"

The battery formation illustrated includes: Spectro-Heat Hot Top; Open Top; Unitherm Fry Top; Deep Fat Fryer; and Side Fired Broiler. Units available in standard black-Japan or Stainless Steel finishes.

Look for the 45-29 Club pin . . . it's the mark of an expert!

GARLAND

DM PRODUCTS

Heavy Duty Ranges • Restaurant Ranges • Broiler-Roasters • Deep Fat Fryers
Broiler-Griddles • Roasting Ovens • Griddles • Counter Griddles • Dinette Ranges

PRODUCTS OF DETROIT-MICHIGAN STOVE CO., DETROIT 31, MICHIGAN
IN CANADA: GARLAND-BLODGETT LTD.—1272 Castlefield Ave., Toronto

price of Prestone anti-freeze from fair trade $3.75 to $2.98 per gal. Mr. Grace is owner of White River Distributors Inc. and one of the founders of the Texas Manufacturing Co.

Mr. Grace won one case in the lower courts. Shortly after this the fair trade price was lowered.

As a result of his company's fight, according to Mr. Grace, the public will save millions of dollars per year on the purchase of hundreds of other fair trade items. "We are fighting this law suit alone," says Mr. Grace. "If we can bring prices down our goal will be reached."

Woman's Home Companion Home Equipment Editor Bernice Strawn tells Photographer Giovanni Suter picture angles she wants for her article on LPG "do-it-yourself" home, built by Mr. and Mrs. Robert Wehrmann on outskirts of La Grange, Ill.

Suburban LPG Home Gets Magazine Publicity

How a young couple built a suburban home, equipped throughout with L. P. gas appliances, at a fraction of the normal cost by doing much of the work themselves is graphically told in a feature article in the January issue of *Woman's Home Companion*. The home is located on the fringe of La Grange, Ill., about 20 miles southwest of Chicago.

The couple installed an L. P. gas range and refrigerator with automatic ice-maker in the kitchen, an L. P. clothes dryer and twin washer in the adjacent laundry room, and an L. P. gas water heater and incinerator in the basement. The house is also heated with LPG by a forced-air furnace.

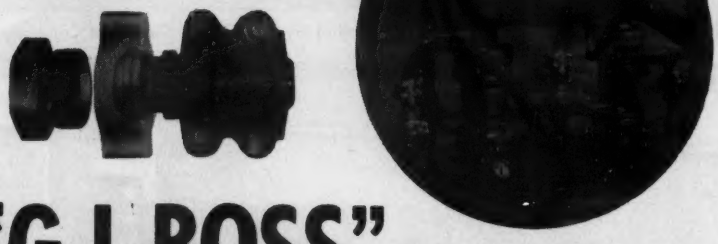
The LP-Gas Information Service, Chicago, learning of the Wehrmann "do-it-yourself" home project, called it to the attention of Bernice Strawn, *Woman's Home Companion* home equipment editor, who liked it immediately. An article was scheduled for the January issue.

The resulting four-page spread embodies two pages with four-color pictures, two with black and white. Particular attention is foused on the all gas kitchen and laundry room.

National Council Urges Gas Act Amendment

Asserting that federal regulation of the natural gas industry resulting from the recent decision of the United States Supreme Court in the Phillips Petroleum Co. case would curtail the supply of liquefied petroleum gas and seriously cripple the L. P. gas industry, the National Council for LP-Gas Promotion has announced

Built to Make Your Hose Connections Extra Safe!



"G J-BOSS" STYLE X-34
GROUND JOINT FEMALE COUPLINGS

You can always be sure of the *safety* of any L-P Gas hose connections when these strong, durable, high-pressure couplings are used. Furnished with powerful-grip "Boss" Offset and Interlocking Clamps. All parts steel or malleable iron, completely rustproofed. Sizes ¼" to 6". Also available in washer type, and with companion "Boss" Male Couplings.

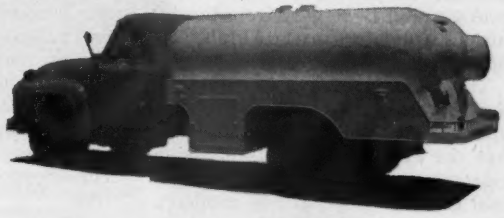
Stocked by Manufacturers and Distributors of Industrial Rubber Products.

DIXON *Valve & Coupling Co.*
GENERAL OFFICES & FACTORY PHILADELPHIA 22, PA. BRANCHES CHICAGO
BIRMINGHAM • LOS ANGELES • HOUSTON • DIXON VALVE & COUPLING CO. LTD. TORONTO
ASSOCIATE COMPANIES BUCK IRON COMPANY, INC. QUARRYVILLE, PA. • PRECISION DRAWN STEEL COMPANY CAMDEN, N.J.

AMERICAN Better Bilt DELIVERY TRUCKS

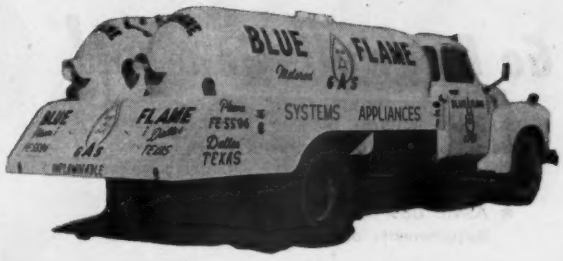
LARGER PAY LOADS...LESS OPERATING COSTS... Mean Greater Profits for You!

American engineered, perfectly balanced delivery truck units bring you — Lighter Weights — Easier Handling — More Gas Delivery — Safer Equipment.



B31—A very popular model with meter and storage boxes mounted on each side of truck and streamlined into the skirting. Motor fuel tank mounted in rear. Fittings are enclosed under a streamlined rear dome. Meter, if desired, is mounted in box on driver's side or may be mounted at the front of catwalk. Main valves are controlled from box on driver's side. Hose may be carried either in box or on catwalk. Hose reels may be mounted on all models if desired.

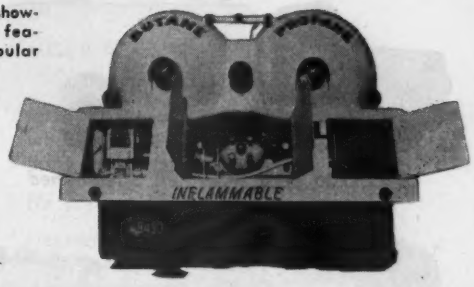
B21—America's most popular 1954 safety designed delivery truck. Motor fuel tank in rear. Meter may be installed in rear protected by small canopy or may be enclosed without destroying usefulness of design. Clutch and power take off controls are in rear. Two storage boxes are located in the rear and there is plenty of room for the hose. This unit was designed especially for safety of the driver and has been proven in service.



N17—A completely enclosed extra light weight compact unit designed with all controls, motor fuel tank, meter, hose reel, power take off and clutch controls all incorporated in rear streamlined cabinet maintaining perfect balance and symmetry of line. Rotary gauges are 1" in size, well protected.

SB3 Model — The American single-barrel delivery unit in sizes from 1200 to 1600 water gallons incorporates all the many desirable features of the twin barrel trucks, including two storage compartments mounted on the rear, motor fuel tank on the off driver's side, plenty of room for hose and meter, and controls may be mounted in the rear if desired.

Rear view of N17 showing the desirable features of this popular model.



Delivery trucks made in sizes from 1250 to 2000 W.G.

ALL MAKES OF NEW TRUCK CHASSIS AVAILABLE AT LOWEST PRICES

FINANCING AVAILABLE Write for Information

American Tank & Mfg. Co.

PHONE RIverside 9183
P.O. BOX 5525

Better Bilt

2136 WEST COMMERCE, DALLAS, TEXAS

Also available at:

Jackson, Mississippi, P. O. Box 2563, Hi-way 80 East, Phone 3-8726 — Littlefield, Texas, 306 N. Ripley, P.O. Box 341, Phone 228 MX

its adoption of a resolution urging Congress to enact legislation amending the Natural Gas Act.

The council asked that the law be changed to free the production of natural gas and L. P. gas "from the injurious regulatory burden thrust upon it by judicial mandate."

The action was taken as a result of the Supreme Court edict in the Phillips case that, under the Natural Gas Act, the Federal Power Commission must assume jurisdiction over natural gas sold to a pipeline company for transmission across state lines.

"Following the recent decision of the United States Supreme Court in the Phillips case," the resolution stated, "the Federal Power Commission has asserted jurisdiction over the production and gathering of all natural gas produced and sold in interstate commerce.

"The result of this decision and the enforcement thereof by the Federal Power Commission is to place the gas-producing industry in the same classification as that of public utilities.

"The business of producing and gathering natural gas has none of the characteristics of a public utility. On the contrary, it is a highly competitive business with a great deal of risk and speculation necessary for it to find and maintain its reserves. Its . . . producers compete with each other. Furthermore, natural gas competes with other fuels, not controlled, while in the public utility field, where business is protected by franchise, competition is limited.

"L. P. gas is a direct product of natural gas and crude oil. Therefore, its basic supply is solely dependent upon the satisfactory reserves and production of natural gas and crude oil.

"There is reason to believe that federal regulation of natural gas production, as asserted by the Federal Power Commission in conformance with the Supreme Court decision, opens the way to the regulation of oil, coal and other fuels. Such regulation would eliminate the stimulus of competition in these industries. The continued beneficial use of these natural resources by the consuming public is dependent upon intra-industry competition without federal regulation.

"The effect of federal regulation of the natural gas producing industry would be a diminishing output, resulting in a decline in the supply of L. P. gas. This would mean a shortage of the fuel, now used . . . (extensively). Although we do not know at this moment what exact course this regulation will follow, we are convinced that it can never take the place of the competition that has existed among gas producers in adequately protecting consumers. Unless corrected, the situation as it now stands will eventually result in decreased supplies of both natural and L. P. gas and higher prices. . . ."

LPGA Asks Investigation Of REA Advertising

LPGA has requested Federal Trade Commission investigation of the propriety of advertising currently being used by several REA coops. This advertising is an especially vicious attack on the safety of L. P. gas.

The widespread use by REA coops of an ad entitled "It Failed Just Once" with two pictures of a farmhouse fire and copy implying that the use of L. P. gas would result in a similar occurrence made the LPGA action possible. The extent of the use of this ad and the uniform copy would indicate national distribution.

To give the FTC jurisdiction it may be necessary to establish that REA coops using this copy distribute their

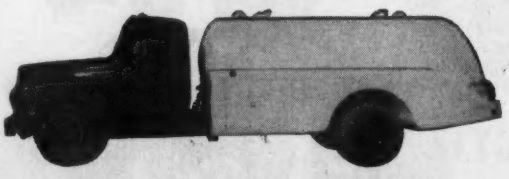
TRUCK DELIVERY or DOMESTIC STORAGE TANKS ?

Go Bagwell-General!

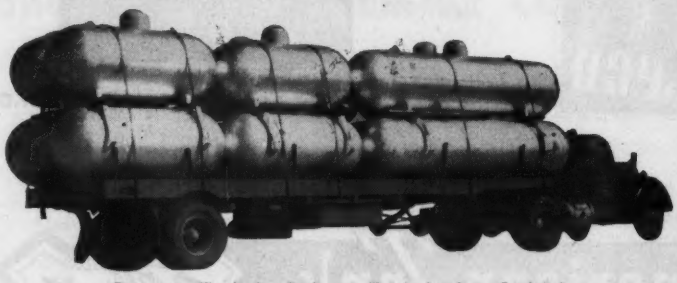
TWIN OR SINGLE BARREL • LIGHT WEIGHT • LOW COST • FULL OR SEMI-STREAMLINED •

Engineer designed, built to specifications and field tested, you can depend upon Bagwell-General Truck or Domestic Storage Tanks.

★ ASME U69 to meet all Federal and State Requirements, our tanks are U/L Approved.



1250 to 1450 W.G. Full Streamlined



Domestic Tank for Pick-up, Trailerload or Carload

Write for Further Information and Prices

BAGWELL-GENERAL STEEL CO.

Write P. O. Box 391 SAPULPA, OKLAHOMA Telephone Sapulpa 2680 Tulsa 50-8500

NEW!
beauty
sales appeal
ease of service

because it's easy to get at!

NEW! Robertshaw-Grayson

UNITROL® 200

FOR AUTOMATIC GAS WATER HEATERS

HELPS YOU SELL WITH ALL THESE "LEAD THE FIELD" FEATURES:

Snap-on temperature dial can be exposed while body of control can be located inside heater shell.

For exposed or concealed application.

Precision-cast body with snap-on aluminum cover available in wide choice of colors.

Colored plastic temperature dial with bright metallic center disc for heater brand name.

Combines snap action thermostat, thermo-magnetic automatic pilot, large capacity gas cock and high capacity filter.

"100% shut off" type with safe lighting feature.

Mr. Controls®

Robertshaw-Fulton CONTROLS COMPANY

Grayson Controls Division, Long Beach, California

Robertshaw-Fulton Controls (Canada) Ltd., Toronto

current across state lines. Members encountering this advertising are urged to immediately advise LPGA of its usage and as to whether the REA coop distributes across state lines.

Arrow Petroleum Gas Wins NSC Small Fleet Award

At the recent National Safety Congress in Chicago safety awards were presented to truck, bus and auto fleets in competing groups for outstanding safety records.

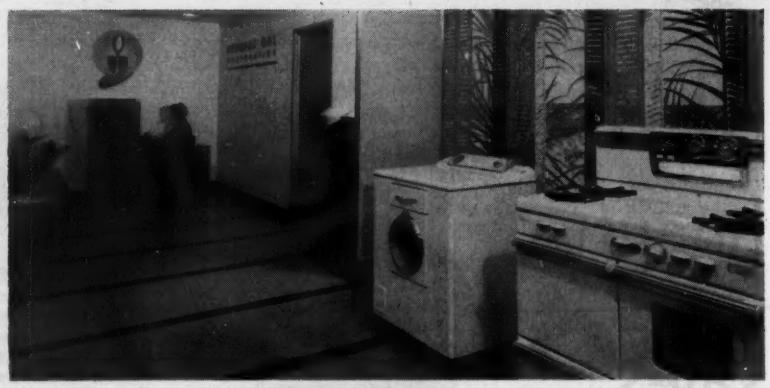
A presentation was made to the Arrow Petroleum Gas Co. of El Paso, first place winner of the National Safety Council fleet contest in the commercial, inter-city, small fleet class.

Arrow Petroleum operates five liquefied petroleum gas transport units serving west Texas and southern New Mexico and during the one-year contest period operated 805,691 miles without accident.

The drivers responsible for this record were honored at a dinner given by the company in the La Fonda dining room. Sgt. James Mason of the Texas public safety department congratulated the men on their achievement and Raymond Dwigans of the Border Butane & Oil Co., El Paso, emphasized the importance of this record to the L. P. gas industry.

Others present for the dinner were Frank Townsend, George Handley, A. E. Chadwick, George Hubbard, George Banta, C. C. Cruz, Delmar Bonham and Joe Snipes, Arrow Petroleum Gas Co. managers. The drivers were presented with engraved cigarette lighters.

Raymond Dwigans, public relations chairman of the El Paso district, Texas Butane Dealers Association, presents the National Safety Council award to drivers. Left to right: Joe Snipes, Raymond Dwigans, Frank Townsend, A. E. Chadwick, George Handley, George Hubbard and C. C. Cruz. Harold Ruffing and George Banta were not present.



Finishing touches have been put on Pyrofax Gas Corp.'s new headquarters in New York. The modern area has white walls, gray and black flooring and a red door leading to company offices. Appliances are shown against wallpaper with an outdoor scene to give a "kitchen" air to the display.

Texas Natural Constructs Texas Gasoline Plant

Texas Natural Gasoline Corp. has announced that construction has begun on a natural gasoline plant which will process natural gas from the Jameson Strawn sand field and the Fuller Coke Strawn sand field, located in northwestern Coke County, Texas.

The plant is being built by Texas Natural and will have a capacity in excess of 70 million cu ft per day. The plant will produce natural gasoline, butane, iso-butane, and propane.

Fifty-seven Use LPG At Favorite Foods Show

Fifty-seven youngsters competed in the finals in the New Jersey 4-H favorite foods show sponsored by the Suburban Propane Gas Corp. and the extension service of the New Jersey department of agriculture recently at the Mid-Atlantic farm show in Atlantic City.

This event, which took place on the main stage in Convention Hall, represented the culmination of a series of contests throughout the state of New Jersey. All of those boys and girls who received awards of "excellent" at the various regional shows were eligible to participate in the finals.

Dishes ranging from hot chocolate to stuffed roast chicken were prepared by boys and girls from 10 to 15 years of age. The youngsters cooked on 16 automatic L. P. gas ranges in the center of the stage.

The favorite foods show closed with an awards banquet at the Claridge hotel. Presentation of the awards was made by Mark Anton, president of the company.

LPG Council Reappoints Executive Committee

All members of the executive committee of the National Council for LP-Gas Promotion have been reappointed for the ensuing year, James E. Pew, president, has announced.

George P. Bunn, manager, natural gas and natural gasoline department, Phillips Petroleum Co., Bartlesville, Okla., was again named as representative of the Natural Gasoline Association of America on the committee and Julius Klein, president, Caloric Stove Corp., Philadelphia, will continue to serve for the Gas Appliance Manufacturers Association.

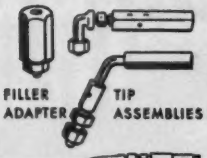
The Liquefied Petroleum Gas Association reappointed C. J. McAllister, vice president, Parlett Gas Co., Waldorf, Md.; Herman Merker, president, Pressed Steel Tank Co., Milwaukee; A. H. Cote, general sales manager, Suburban Propane Gas Corp., Whippany, N. J.; and Charles O. Russell, president, Rapid Thermogas Co., Des Moines.

Messrs. Bunn, Klein, Merker and McAllister will also continue as vice presidents of the council, representing the producer, appliance manufacturer, equipment manufacturer and

B-91
PROPANE TORCH

Mutual

YOUR FIRST CHOICE



SOLDERING, BRAZING, SWEATING, MELTING

The handiest torch you have ever seen. Especially useful for jobs where larger tanks or connecting hoses would hamper or endanger workmen. The B-91 Torch can be held in one hand with ease.

This Mutual Portable Torch is ready for instant use; generates in any weather. No pumping or priming. No warm up or sooting. Flame won't blow out. Easy and safe to light and control. Heats up to 2300 degrees F. Over 4½ hours continuous use in the cylinder. Fill it yourself for approximately ten cents — nothing to throw away. Cylinder meets ICC regulations and is equipped with fusible plug.

Try it! Get the complete B-91 Kit. Sell it on its labor saving merits. Sell it to plumbers, electricians, garages, linesmen and sheet metal shops. Display it in your store window. Use the B-91 as a leader; you'll be surprised with results. SEND TODAY for complete catalog and prices on all Mutual equipment.

INSTANT **HEAT**

NO PUMPING – NO PRIMING

Member L.P.G.A.

Mutual LIQUID GAS EQUIPMENT CO., Inc.

17129 S. BROADWAY, GARDENA, CALIFORNIA

PRESSED PRODUCTS
...from our HEAD DEPARTMENT

MASTER TANK & WELDING

HEADS IN STOCK READY TO SHIP

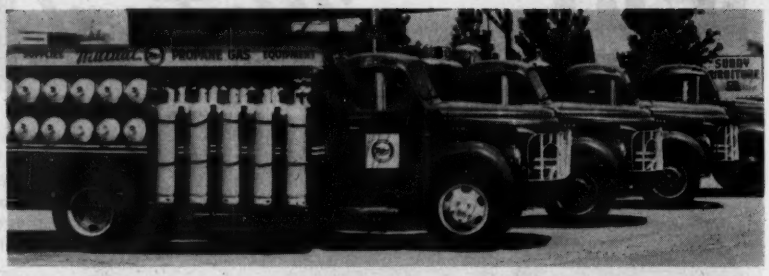
P. O. Box 5146 • Dallas, Texas • PRospect 2441

marketer branches of the L. P. gas industry, respectively.

Mr. Pew also announced the reappointment of the chairmen and entire membership of the copy committee and the public relations committee.

Amm-o-gro To Market Brea Chemicals Ammonia

Amm-o-gro division of Specialty Oil Products has been established as marketer of anhydrous ammonia produced by Brea Chemicals Inc., subsidiary of Union Oil Co. of California. The announcement was made by H. R. Fifer, Brea vice president in charge of marketing and distribution, and Robert E. Maloney, president of Specialty Oil Products.



Four of the six trucks which Mutual Liquid Gas & Equipment Co. of Los Angeles is now leasing from Reo Truck Leasing Inc. The fleet, consisting of five F-20B Reos with 12-ft stake bodies and lift gates, and one F-20-3C Reo with a special Moda propane body, serves industrial and residential customers throughout southern California.

The contract calls for Amm-o-gro to immediately begin its activities in the promotion, sale, transportation, and storage of anhydrous ammonia. In this connection Specialty Oil Products recently acquired a fleet of 100 ammonia railroad tank cars.

Supply of the product will be the ammonia plant recently completed for Brea Chemicals near Los Angeles.

Fleming Bottled Gas, Rapid Thermogas Merge

Fleming Bottled Gas Service of Lone Rock, Wis., has merged with Rapid Thermogas Co., whose main offices are in Des Moines.

In making the announcement, Archie Fleming, who has owned and operated Fleming Bottled Gas since 1948, said that Fleming Bottled Gas will be associated with the local branch of Rapid Thermogas.

Under the agreement Mr. Fleming will be manager of the retail division which will handle the sale of appliances. Shirrell Bailey, who has been manager of the local Rapid Thermogas branch, will continue as manager of the wholesale division.

Inspection Finds Faults With Fire Extinguishers

Dick Dorman, director of the liquefied compressed gas division, state of Mississippi, reports that on a recent inspection tour of bulk plants and examination of mobile equipment, it was observed that many fire extinguishers were badly located.

At bulk plants, the extinguisher might be located inside the pump house where the chance of fire is the greatest. A fire would block out all access to the extinguisher. If the pump house did burn, or a fire break out around the extinguisher, not only would it be impossible to use the extinguisher, but included in the loss would be the expensive extinguisher itself.

On delivery and transport trucks, there is not so great a problem, as

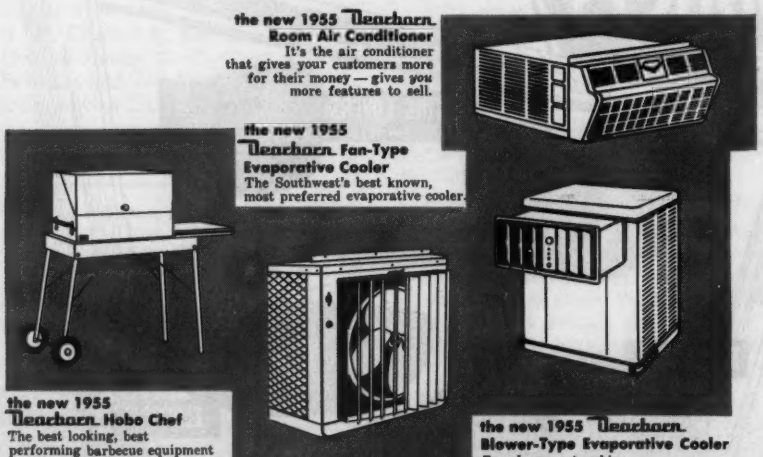
$ummer $alesmakers by Dearborn

makers of the famous cool safety cabinet gas space heater

Dearborn's famous Cool Safety Cabinet gas space heater is your biggest winter profit-maker — No. 1 in sales all over America. And, Dearborn's *summer comfort-makers* can be your biggest profit-makers, too. They're loaded with features and they're loaded with quality. They're highly competitive in price . . high in performance . . high in looks. And when you carry the Dearborn line you carry Dearborn's *reputation*, best selling tool of all!

the new 1955 Dearborn Room Air Conditioner
It's the air conditioner that gives your customers more for their money — gives you more features to sell.

the new 1955 Dearborn Fan-Type Evaporative Cooler
The Southwest's best known, most preferred evaporative cooler.



the new 1955 Dearborn Hobo Chef
The best looking, best performing barbecue equipment on the market at its amazingly low price.

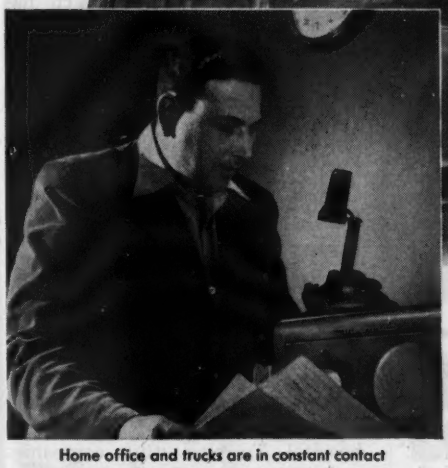
the new 1955 Dearborn Blower-Type Evaporative Cooler
Brand new — two big blower-type models for high volume sales—packed with saleable features.

VISIT US AT THE JANUARY MARKET SPACE 511-A American Furniture Mart, Chicago

Dollar-Wise it's Dearborn for sales and profits the year 'round

Dearborn®
1700 WEST COMMERCE, DALLAS, TEXAS

GAIN 2 HOURS PRODUCTION per truck, every day!



Home office and trucks are in constant contact through dependable radio communications.

Operational control with Motorola 2-way Radio gains $1,437.28 per truck per year for many users!

Watch the hourly operations picture and the monthly total will take care of itself! No two ways about it, you stand to gain with a sharp radio dispatcher to call the plays over Motorola 2-way radio in all your delivery trucks.

A friendly Motorola engineer located in your vicinity can tell you of immediate savings, advantages and extra profits. As a representative of the largest *exclusively-radio* organization in the field, he offers practical experience with other L. P. gas dealers.

For example, on-the-spot credit reports and controls, elimination of stalls and overtime, fast relief in breakdowns, rerouting on the move, all these and more improvements add to your competitive advantage.

Only $1.00 per day, per truck, puts this new profit tool in your service—for a 3 to 1 profit on your investment. And remember! It pays to own your own 2-way radio and it pays to insist on Motorola, outstandingly the best!

So don't delay, write or phone at once and let a qualified Motorola engineer give you the straight facts.

Motorola Communications & Electronics, Inc.

A SUBSIDIARY OF MOTOROLA, INC.

4501 W. Augusta, Chicago 51, Ill. • Rogers Majestic Electronics, Ltd., Toronto, Canada

national Motorola RADIO COMMUNICATIONS service

COMING! NEW SALES AIDS for dealers

1st in The Heat Parade!

Martin Gas Heaters

8 FULLY VENTED HEATERS
15,000 BTU to 85,000 BTU

23 UNVENTED HEATERS
10,000 BTU to 50,000 BTU

Write your jobber or direct for complete catalog

Our 50th Anniversary Year

MARTIN STAMPING & STOVE CO. Huntsville, Alabama

ANNOUNCING

'FLO-MIX'

The Complete Liquid Fertilizer Applicator

WRITE TODAY FOR DETAILS

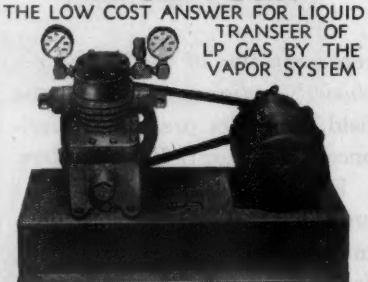
PLANTATION FERTILIZERS CORP.

P. O. Box 807, Houma, La.

for SAFETY and ECONOMY

USE "NEW" KRUG VAPOR PUMP

THE LOW COST ANSWER FOR LIQUID TRANSFER OF LP GAS BY THE VAPOR SYSTEM



TRANSFERS LIQUIDS AT THE RATE OF 10 TO 25 GALLONS PER MINUTE WITH COMPLETE SAFETY

The New, KRUG Vapor Pump is portable, efficient, and built for years of high quality service. This compact unit will give you a faster rate of flow per H.P. used, and a better profit per dollar invested. A KRUG Pump doesn't cost . . . IT PAYS! Don't waste upwards from 4% of the amount of gas transferred—compress it back in your storage tank with NEW KRUG VAPOR PUMP.

Famous KRUG HAND PUMP used for tractor filling, bottle and tank filling, etc. Pioneered for Low Cost L. P. Gas transfer . . . write to:

D. H. KRUG COMPANY
Dept. BP155 Madison, South Dakota

a natural location automatically suggests itself, near the bumper.

On some equipment, however, the extinguisher is still carried loose, or located inside metal cabinet doors and in the immediate vicinity of pumps, meters and valves.

During the inspection tour many extinguishers were found without horns or means to direct the flow from the extinguisher upon the fire. Several were empty.

Winnipeg Gas Acquires Propane Distributor

Winnipeg & Central Gas Co. has acquired a propane distributing company, Home Gas Co., for a reported $500,000.

The propane firm has about 8000 customers in Manitoba, Saskatchewan and Ontario.

Winnipeg & Central, which has 15,000 customers, is making arrangements to convert its present system to propane from manufactured gas.

Home Gas is expected to handle propane business in areas not now served by the Winnipeg gas system's lines.

Model Gas Kitchen Helps Crippled Children

A model kitchen equipped with the latest appliances is helping crippled youngsters at the Los Angeles orthopaedic hospital to lead a normal life despite their handicaps.

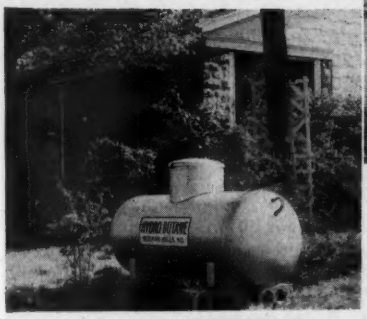
The kitchen is part of a newly opened rehabilitation wing at the hospital. Two gas utility companies and three gas appliance manufacturers cooperated in designing and equipping the kitchen so that handicapped teen-agers can learn to keep house.

The model kitchen was planned by the staffs of the Southern Counties Gas Co. and the Southern California Gas Co. The appliances include a Servel gas refrigerator, a Whirlpool washer-dryer combination, and an O'Keefe & Merritt gas range.

Bottled Gas Corp. Elects R. E. Leitch

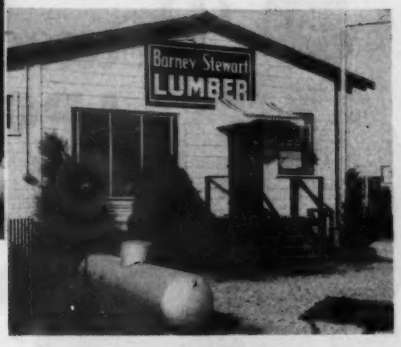
Robert E. Leitch, of Fredericksburg, has been elected vice president in charge of sales for the Bottled Gas Corp. of Virginia, it is announced by President E. Otto N. Williams.

Mr. Leitch, who has been manager of the company's Fredericksburg office for seven years, will supervise the firm's sales program throughout the state. He currently is a vice president and director of the Virginia L. P. Bottled Gas Association.



FOR HOME...

...OR FARM...



...OR COMMERCIAL INSTALLATIONS

They Fit Right Into Your Sales Picture

Everywhere you look, you'll find a ready-made market for BS&B Propane Systems... and you'll find these quality-built propane systems give you selling points that assure your customers years of trouble-free service! They're tested and inspected *thoroughly,* all during manufacture. For fast sales, easy installation and positive customer satisfaction, sell BS&B "Perfection" Propane Systems!

69

BS&B Unloading Rack

Stop awkward unloading... minimize fire danger! New BS&B Unloading Rack makes walking sure and easy. Needs only small space, has ladder or stairway on left side, right side or front as you order. Loading drop folds out of way. Shipped knocked down, cut and marked for easy erection.

BLACK, SIVALLS & BRYSON, INC.

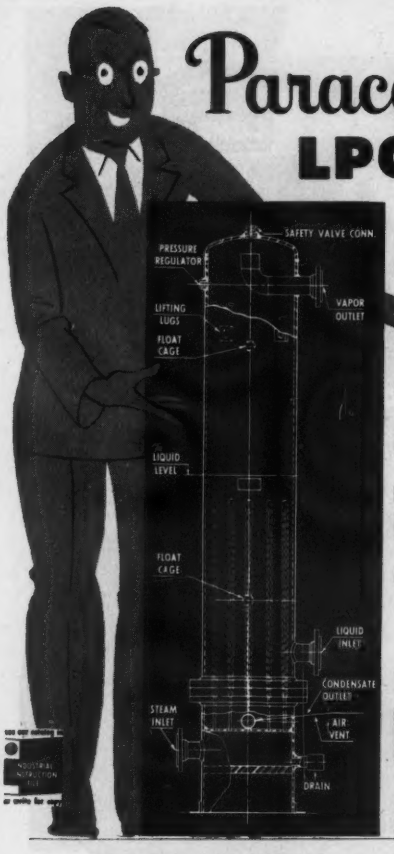
Propane Equipment Division, Dept. 6-AB1

7500 East 12th Street Kansas City 26, Missouri

PROPANE BS&B SYSTEMS

Paracoil SERIES 48E
LPG vaporizers
(STEAM TYPE)

FOR INDUSTRIAL AND UTILITY INSTALLATIONS



CHECK ✓ These Points of Proven Superiority...

- ☐ HIGH OUTPUT CAPACITY IN MINIMUM FLOOR SPACE
- ☐ NON-FREEZING, FAST DRAINING CONDENSATE SYSTEM
- ☐ OPERATES UNDER AUTOMATIC CONTROL
- ☐ ENTIRELY SAFE—NO OPEN FLAMES—USES LOW PRESSURE STEAM
- ☐ STANDARD PRODUCTION MODELS TO 6000 G.P.H.

DESIGN: ASME STAMPED, PAR U-69, N.B.F.U. PAMPHLET 58

Write for additional data and prices.

DAVIS ENGINEERING
CORPORATION

1058 East Grand St., Elizabeth 4, New Jersey
30 Rockefeller Plaza, New York 20, New York

GAS DEALERS...
Double Your Income

We are signing franchises with bottle gas dealers all over "hard water" America. You have the set-up and the customers. Deliver rental softener units to homes, laundries, beauty parlors, cleaning plants . . . wherever soft water is needed.
All you need are the softener units and the inexpensive regeneration equipment. Franchise inculdes the sale of DOWEX to all domestic, commercial and industrial areas.

Act NOW While Good Territory is OPEN

Get A

Filter-Soft
FRANCHISE
PHONE, WIRE OR MAIL COUPON

FILTER-SOFT CORP. (Dept. BPN)
Mail us your Dealer Plan

Name_____
Firm_____
Street_____
City_____ State_____

FILTER-SOFT CORP.
15911 ARTESIAN • DETROIT 23, MICHIGAN

10 DAY TRIAL OFFER

Try the Martin Tube Bender on the job for 10 days. If you are not satisfied with its performance, return it to us and we will not bill you.

If you decide its the best bender you ever used and keep it longer than 10 days, we will bill you the regular price of $19.50 plus postage and insurance charges.

BEND TUBING EVENLY in close quarters with little effort

Dimensions: 9½ x 3½ x 3½ — weight 4½ lbs. Two sizes handle all jobs: #5 bends ⅜" and ½" o.d. soft tubing, #5A bends ½" and ⅝" o.d. soft tubing. Each without roll changes!

All bends are on 1¾" radius and are practically distortionless. Gear arrangement operated by rachet lever rolls the bend in the tube easily, makes bends in either direction by turning tool over and operating from other side. Sturdy — compact.

Write today for details on our free trial offer.

W. H. MARTIN Tube Benders
Box 692, Owensboro, Kentucky

News Notes

Caloric Stove Corp., Topton, Pa., announces a change in its corporate title to Caloric Appliance Corp., Julius Klein, president, has announced. The change coincides with company growth and modernization as well as with expansion of its product line.

To meet the growing demand in Britain for butane and propane, Shell group is constructing a new plant at Shell Haven, in Essex near London. The plant will produce 10,000 tons of L. P. gas per year.

Prentice-Hall Inc. will publish a book, "New Rapid Tax Depreciation —What It Means to You." Priced at $15 a copy, the book discusses the rapid depreciation sections of the 1954 income tax code.

Appointment of R. J. Potts-Calkins & Holden Inc., Kansas City, Mo., as advertising agency for the heating and air conditioning division of the Coleman Co. Inc. has been announced by Sheldon Coleman, president and general manager.

The center for safety education of New York university, New York, is offering, during the spring semester, eight courses in industrial and traffic safety. Information can be secured by writing the university.

Perfection Stove Co.'s 1954 line of space, portable and water heaters will continue without change for 1955. According to President D. S. Smith, this guarantees dealers against price reduction on these items for a year and eliminates obsolete inventory.

Registration of the "Signer Seal" of the industrial gas equipment division of the Gas Appliance Manufacturers Association as a trade mark has been announced by J. H. Sands, chairman of the division.

A substantial interest in Gurney Products Ltd., Canadian manufacturer of ranges, has been acquired by the Tappan Stove Co. of Mansfield, Ohio.

Fielden Instrument Division of Robertshaw- Fulton Controls Co. has expanded its plant and office facilities in Philadelphia. A new engineering and technical service office has also been established in St. Louis to serve the central states.

When fire threatens...

Grinnell ProtectoSpray drenches LPG tanks

When fire threatens LPG storage, you need *plenty* of water spray and vapor, fast and in the right places. That is why more owners of LPG bulk storage plants are turning to Grinnell for fire-protection engineering. Grinnell Automatic Fire Protection Systems are the result of more than three quarters of a century of progressive development. They have proved themselves effective guardians of life and property. It is only natural that they are increasingly specified for protection under the severest hazards.

In an LPG tank installation, any leak brings the chance of fire. To avert possible disaster, several things become immediately necessary:

1. The leak must be located and the leakage stopped. Grinnell ProtectoSpray provides a margin of safety for the personnel doing this work.

2. Heat transfer to the storage tanks must be prevented to avoid build-up of rupturing pressure within the tanks. Properly engineered fixed water spray protection provides effective cooling of tanks to prevent pressure build-up.

3. Positive air turbulence should be provided to hasten dilution of escaped gas to make the mixture too lean to burn. Water spray, without dependence upon wind to assist it, provides sustained air movement which hastens the dilution of escaped LPG.

4. Additional inert vapor should be provided to speed the dilution of escaped LPG. Water spray is an abundant source of such inert vapor, the finer droplets vaporizing to produce inert water vapor.

5. If escaped gases ignite, the wide and evenly distributed pattern of fine water droplets from Grinnell ProtectoSpray nozzles permits safe, controlled burning of gases.

Get the complete story. Write for a copy of "Water Spray Keeps LPG Storage A Safe Neighbor".

Grinnell Company, Inc., 272 West Exchange Street, Providence, R. I.

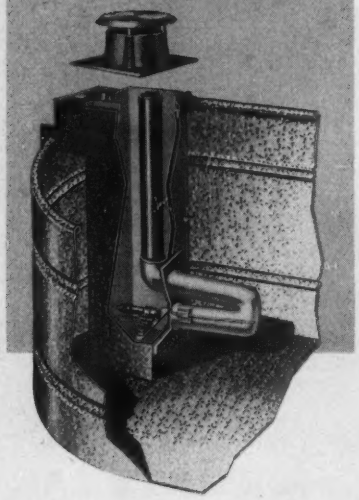
GRINNELL

PROTECTION AGAINST EVERY FIRE HAZARD

Manufacturing, Engineering and Installation of Automatic Sprinklers Since 1878

Reliable... Popular Profit-making

JOHNSON WATER WARMER



Automatic stock tank heater

Cattle are more profitable when their winter drinking water is raised to a drinkable 48° temperature. So cattlemen and dairymen are looking to Johnson for efficient, economical and worry-free stock tank heating . . . with good reason.

Simple Installation, Dependable
The Johnson Water Warmer is the last word in LP-gas fired stock tank heaters. It maintains automatic 48° water temperature even in coldest weather, and with utmost efficiency and convenience. Installation is simple on any type steel, wood or concrete tank; requires one tool — a wrench. Operation is simple and dependable — guaranteed condensate control — weatherproof. Quick access to controls makes it easy to inspect.

Enjoy Johnson Profit Features!
Sell the Johnson Water Warmer on its many merits. Profit from many sales, and from average LP-gas sales of 600 lbs. per year per heater. Profit from the good will of satisfied customers.

Write for complete details now!

JOHNSON GAS APPLIANCE CO.
597 E Avenue N.W., Cedar Rapids, Iowa

IF IT BURNS GAS LOOK TO
SINCE 1901 JOHNSON

"Tube Techniques," an exhibit highlighting the problems encountered by plumbing and refrigeration servicemen when preparing tubes for use, was a feature of the booth occupied by Wolverine Tube, division of Calumet & Hecla Inc., at the annual Air-Conditioning & Refrigeration Institute educational conference held in Minneapolis.

The liquefied petroleum gas division of Southwestern Public Service Co., Orlando, Fla., held a managers' conference to discuss several innovations for improved customer service and for policy standardization.

A pocket summary of the new income tax law has been published by the United States Chamber of Commerce, Washington, D. C. Single copies may be obtained free upon request.

Plans have been approved for the construction of a $1.5 million administration office building, to house administrative, sales and advertising personnel of Whirlpool Corp., it was announced by Don Alexander, vice president in charge of operations.

Enterprise Publications, Chicago, is publishing a monthly magazine, *Enterprise.* According to the publisher, Moris Hoversten, the new magazine's prime aim is to simplify and explain the basic elements of business which generally mystify the employe. The magazine is for office and factory employes.

Correction

Robert N. Bohen has purchased the Las Vegas Gas Co., Las Vegas, Nev., instead of Roy Long, as was stated in the Nov., 1954, issue, p. 142.

NEW YEAR'S RESOLUTIONS FOR DRIVERS*

I will remember that courtesy is fun because it is so unexpected.

I will give my signals correctly, so no one may accuse me of being a liar by my hand.

I will not insist on the right-of-way when it is mine, for it is better to be a few seconds late and alive than a few seconds early and dead.

I will do the thinking for two—myself and the other driver who may have trouble thinking for one.

I will remain alert and alive, so I may keep out of the way of other drivers who may be asleep or already dead but not yet buried.

I will remember that no one can drive a car going faster than 65 miles per hour—he can only aim it.

I will never race a train to a crossing, for the result might be a tie.

I will give all children the chance to grow up to be the kind of person I might have been.

I will give pedestrians the opportunity to become angels in their own slow way.

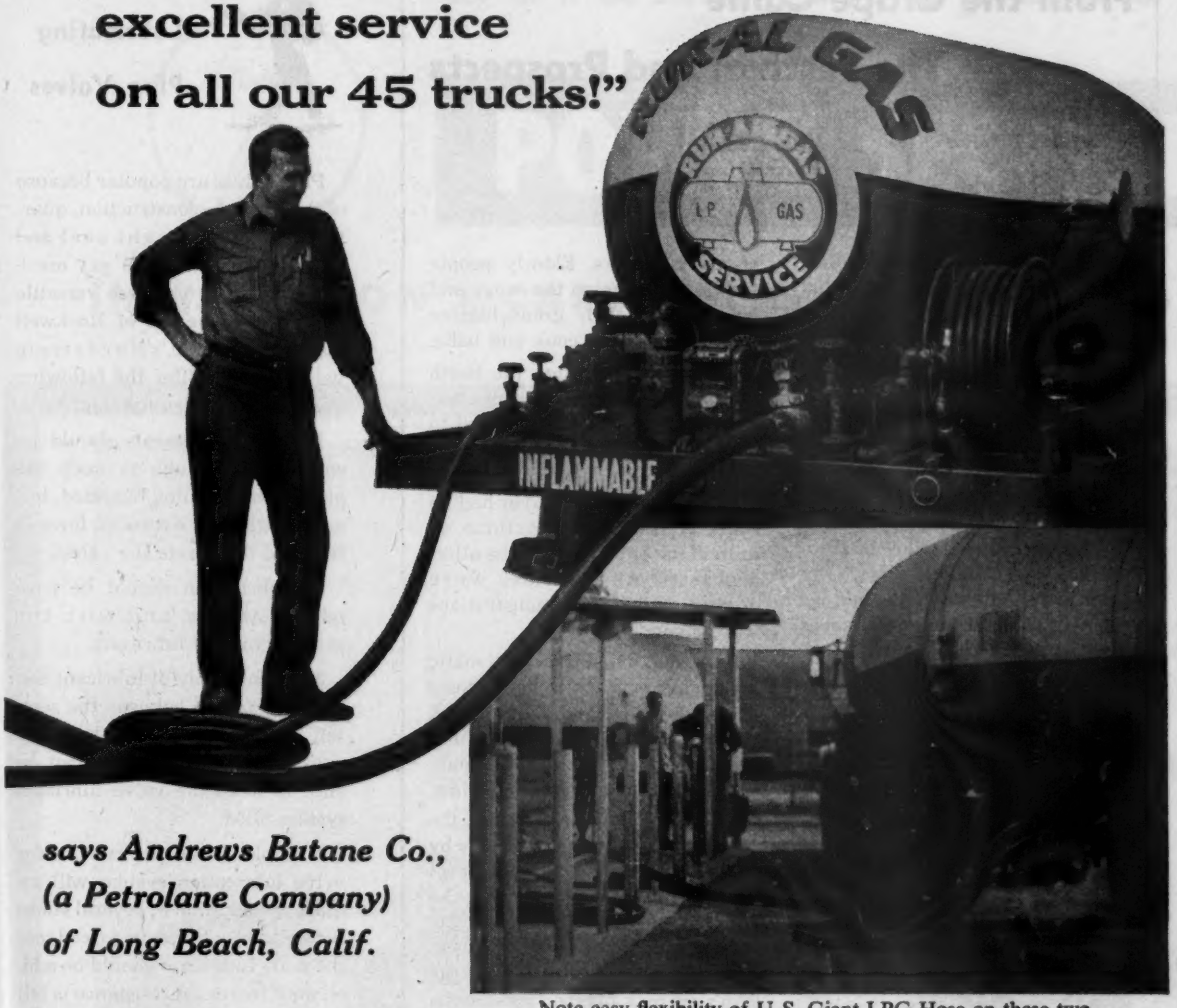
I will remember that drivers have more accidents after sundown.

I will always keep a little air between my vehicle and the next one on the road.

I will not drive in the wrong lane on hilltops and blind curves unless all intervening obstructions are transparent.

*Clip and put on your bulletin board.

"U. S. Hose gives excellent service on all our 45 trucks!"



says Andrews Butane Co., (a Petrolane Company) of Long Beach, Calif.

Note easy flexibility of U. S. Giant LPG Hose on these two Trucks of Andrews Butane Company's fleet.

"And U.S. Giant® LPG Hose has proved to be very satisfactory in *all* instances," the Andrews Butane Company adds.

The reason so many LPG outfits standardize on U. S. Giant Hose is because it's both flexible *and* strong. Employees find it easy to handle, permitting fast operation, easy coiling, and more *customer calls* per working day. U. S. Giant's tube is compounded to resist LPG's permeating action. A specially-designed cover prevents blistering. Complete size range from ½" to 3" with burst pressures well above the safety standards of any State.

U. S. Giant LPG Hose is obtainable *without delay* from any of our selected distributors or any of our 27 District Sales Offices, or write address below.

US RUBBER

"U.S." Research perfects it..."U.S." Production builds it... U.S. Industry depends on it.

UNITED STATES RUBBER COMPANY

MECHANICAL GOODS DIVISION · ROCKEFELLER CENTER, NEW YORK 20, N. Y.

Hose • Belting • Expansion Joints • Rubber-to-metal Products • Oil Field Specialties • Plastic Pipe and Fittings • Grinding Wheels • Packings • Tapes Molded and Extruded Rubber and Plastic Products • Protective Linings and Coatings • Conductive Rubber • Adhesives • Roll Coverings • Mats and Matting

From the Grape Came The Festival and Prospects

By Ken Cooper
Maco Gas Co.
Lodi, Calif.

MORE than 100,000 visitors attending the annual grape and wine festival in Lodi, Calif., heard the L. P. gas story from Maco Gas Co.

Maco employes talked to some 2000 people, while thousands of others gave the display booth a thorough inspection during the three-day festival, which annually celebates the end of the harvest of Flame Tokay grapes grown in the fertile central valley of California.

Maco felt that there would be a potential market for appliances and gas at such a gathering, although it didn't expect immediate sales from its exhibits. Maco did get a large list of qualified prospects for future sales, and had an opportunity to test its potential markets.

The firm used several means of attracting people to its exhibits. A real "crowd stopper" was a Wedgewood coal range, built in 1894. The old range, placed almost in the walkway, caught the eyes of many visitors. Elderly people stopped to examine the range and explain to their grandchildren how they used to cook and bake.

Coal range, built in 1894, was the eye-catcher of the Maco Gas Co. exhibit at the annual grape and wine festival in Lodi, Calif.

To bring people into the booth Maco had a Rheem Wedgewood dryer with the lid mechanized to continually open and close. The booth was arranged so that anyone coming up to the dryer had no other choice but to continue on around the booth and see the other appliances. All appliances were connected and demonstrations were given.

Ice from the Servel automatic ice maker was used by a home economist in an adjoining booth for icing blended fruit juices, and she cooperated with Maco in making frequent mention of this fact.

A background display in the Maco booth consisted of a 40- by 50-in. blow-up of Maco's tank decal and a 8- by 12-ft map showing the counties served by Maco Gas Co. Also shown on the map were locations and gallons of storage of the firm's six bulk plants. Ticket stubs for the daily evening prize drawings had the Maco map on the reverse side, while the same map was used in pre-festival advertising.

Visitors registering for prizes were asked to indicate whether they were interested in appliances or gas. Thirty-three percent of those registering were interested in ranges, 32% in refrigerators, 10% in heating equipment and 9% in water heaters. Seven percent expressed interest in weed burning equipment, while 6% desired Maco gas and tanks. Three percent expressed interest in other uses.

It was from the group of visitors registering for prizes that Maco Gas Co. got its list of qualified prospects for future sales. ■

Tips on Lubricating Plug Valves

Plug valves are popular because of their simple construction, quarter-turn closure, tight seal and ease of operation. To get maximum service from these versatile valves, engineers of Rockwell Manufacturing Co.'s Nordstrom valve division offer the following tips on plug valve servicing:

1. Plug adjustments should be snug—tight enough to keep the plug from becoming unseated, but not so tight that excessive force is required to operate the valve.

2. Lubrication should be periodic, systematic, and with the proper grade of lubricant.

3. Fresh supply of lubricant can be easily forced between the seating surfaces by giving the lubricant screw a few turns. But be sure to keep the valve lubricant system filled.

4. Depletion of lubricant in the valve lubrication system will require the addition of several sticks before lubricant can be forced into the seat. Lubricant should be added until increased resistance is felt in turning the lubricant screw, or until there is increased pressure when gun lubrication is used.

5. Turn the plug slightly when lubricating to assist in the distribution of lubricant and to determine if the adjustment is correct. If the valve is lubricated with the adjustment too loose, efficient lubrication cannot be obtained. Further, the valve may be permanently unseated allowing the lubricant to quickly dissipate and the valve may leak. If the valves are overlubricated with the adjustment too loose, it can be corrected by alternately tightening the adjustment and turning the plug. This will work out the excess lubricant and permit the plug to return to its proper position in the seat. ■

Butane-Propane

POWER SECTION

INSTALLATION • CARBURETION • SERVICING

This fleet of converted towing units and fork lifts keeps the warehouse air pure in Ralph's Grocery Co. warehouse in Los Angeles.

(For a story about the advantages of L. P. gas for fork lift trucks, see page 132.)

Load Building Potentials

By Carl Abell
Editor

Why Use L. P. gas For Fork Lift Fuel?

TODAY'S hottest subject in connection with materials handling is the conversion of fork lift trucks from gasoline to L. P. gas. It has received much space in magazines devoted to the handling of materials, and the circle is widening to include magazines published for warehousing companies, the food processing field, and industry in general. The subject has even received front page treatment in the *Wall Street Journal.*

The L. P. gas carburetion manufacturer that has made the most progress in this field is the Parkdale Co., Los Angeles. Bob Zonker, general manager of this company, reports that as the result of the articles mentioned above, and small advertisements in the materials handling magazines, his company is receiving from 30 to 100 mail inquiries per week. These come from a wide variety of sources, including many of the leading manufacturers of the United States, government departments operating warehouse facilities or concerned with storage or transportation problems, insurance companies, colleges, public health officials, and other individuals. Other carburetion manufacturers report steadily increasing interest.

This is Part 1 of a two part series on fork lift and industrial truck conversions. Many of the advantages of L. P. gas over gasoline for fork lift trucks are cited here. Next month Editor Carl Abell will discuss fuel costs and supply problems, conversion techniques and insurance.

For other materials handling articles in BUTANE-PROPANE *News, see May, 186, "Bottled Gas Solved the Warehouse Fumes Problem"; Aug., 141, "Propane Carburetion, Catalytic Exhaust Successful in Pictsweet Cold Rooms," John W. Taylor; Dec, 163, "Materials Handling Conversions Cut Costs, 'Down Time' for Lockheed," L. J. Rowley.*

More than 20 trucks at a time work through the Ralph's Grocery Co. warehouse. Workmen appreciate absence of carbon monoxide and irritating exhaust fumes.

Leading manufacturers of fork lift trucks are giving serious attention to this growing interest, with several factory-equipped models being offered. Some of these have received insurance laboratory approvals, and others are now in various stages of the testing procedures.

There are two primary reasons back of the current wave of interest in LPG for fuel in industrial trucks used indoors. These are operating economy—reduction of overall cost of using the powered units, and reduction of objectionable exhaust fumes which have been an unavoidable characteristic of gasoline powered industrial units.

The economy angle is to some extent bound in with the comparative costs of gasoline and propane in the locality where the lift truck is used. Generally speaking, LPG costs are low in the West, Midwest, most of the Gulf states, and the north-central states. Toward the North Atlantic and New England states, the price is considerably higher. In the latter group the economy argument tapers off.

The advantage of eliminating the exhaust products of gasoline from the atmosphere of the factory or the warehouse is a potent argument for the conversion in any locality, and even a small increase in employe efficiency brought about by elimination of fumes will more than offset any small difference in fuel cost.

This matter of exhaust fumes, both as a nuisance accompanying indoor operation of engines, and as a component of the smog which is becoming increasingly serious in our atmosphere over the industrial centers across the nation, has been widely discussed but not widely understood. It is generally known that carbon monoxide exists as a minor product

of combustion of all internal combustion engines. It is regarded as a serious hazard because in too high concentration it can cause serious illness or death.

Carbon monoxide has had the lion's share of attention in most discussions and many investigations of exhaust fumes. In approaching the problems of atmospheric pollution in buildings where engines are running, it might be well to take a good clear look at what carbon monoxide is, and what it is not. And what it is not—the rest of the objectionable products of combustion—is important in connection with atmospheric pollution.

Carbon monoxide is colorless, odorless, and quite unstable. In an atmosphere containing oxygen it becomes converted to carbon dioxide rather quickly. The normal products of complete combustion of hydrocarbon fuel (this includes the entire group of petroleum hydrocarbons from diesel oil, through kerosene, gasoline, butane, propane, on down to natural gas) are carbon dioxide and water vapor.

If the mixture of air and hydrocarbons contained no surplus of hydrocarbons, and if the mixture could be complete, and if adequate time for complete combustion could be provided, we would have nothing coming out of the exhaust except carbon dioxide, water vapor, and the nitrogen and rare gases from the air, which go through the engine unchanged.

But we do not run engines on perfect mixtures, and we cannot allow time for complete combustion. There is either a surplus of fuel or a shortage of oxygen—you can think of unbalanced mixtures from either standpoint—at all times. Either way it adds up to the fact that for practical operation we must supply a little more hydrocarbon than oxygen. And for idling and full-power operation, the surplus of fuel in relation to air must be a little greater than the minimum which will give us satisfactory operation under "cruising" conditions in the medium speed range, when full power is not required.

The closer we can operate to a chemically perfect mixture of fuel and air, the less carbon monoxide is produced. The opposite is just as true; the greater the surplus of fuel in the mixture, the more carbon monoxide comes out of the exhaust. How rich we must set the carburetor mixture to get good idling, cruising, and power characteristics depends to a great extent on the volatility of the fuel. Gasoline is not as volatile as butane or propane, so its distribution to the different engine cylinders is more uneven.

But we must still supply the full mixture requirements of all cylinders under the differing requirements for idling, cruising, and full power. In order to get enough fuel in the lean-

Mutual Liquid Gas Co., Los Angeles area LPG distributor, uses propane in outdoor fork lift for economy purposes.

MEASUREMENTS OF WEAR

Continental F4140 Engine in Clark Fork Truck Operated 632 Hours on Gasoline, 5341 Hours on LPG

Cylinders (Standard 3.1885 in.)

Cyl. No.	Bottom	Top, Fore, Aft	Top, Across
1	3.1885	3.191	3.1905
2	3.1885	3.190	3.1915
3	3.1885	3.1915	3.1915
4	3.1885	3.191	3.1910

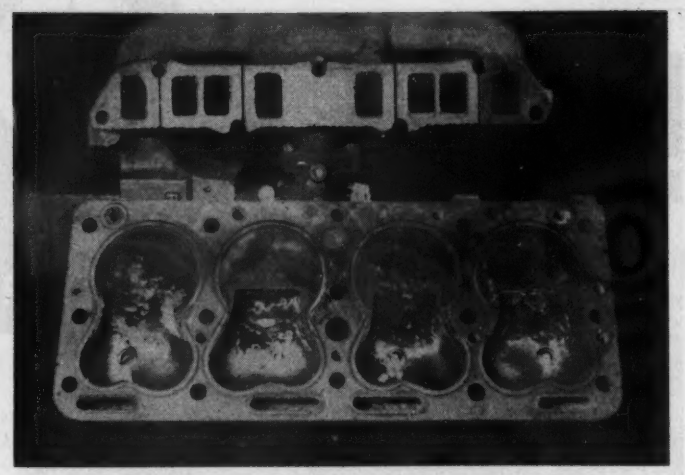
Crankshaft Main Bearing Journals (Standard 2.249 - 2.250 in.)

Jour. No.	With Oil Holes	Across Oil Holes
1	2.2485	2.2495
	2.249	2.2495
2	2.249	2.250
	2.2495	2.250
3	2.249	2.249
	2.249	2.2495

Connecting Rod Journals (Standard 1.9365 - 1.9375 in.)

Jour. No.	With Oil Holes	Across Oil Holes
1	1.9365	1.936
	1.936	1.936
2	1.937	1.937
	1.9365	1.9365
3	1.9365	1.9365
	1.936	1.9365
4	1.9365	1.9365
	1.936	1.936

New piston rings and bearings were installed at this overhaul. It was not necessary to rebore cylinders or regrind crankshaft.



Cylinder head and intake manifold of fork lift engine, after 7000 hours on L. P. gas, are practically clean. Only slight carbon deposit shows in exhaust passages.

est cylinders we must accept overrich mixtures in the richer cylinders. Because of the greater volatility of L. P. gas the mixtures may be somewhat leaner (nearer to the perfect chemical balance) when operating on LPG, which is completely vaporized before it is admitted to the carburetor to mix with the air stream. The engine still produces a little carbon monoxide even with best possible adjustment, but it is noticeably less than we always get with gasoline, even in the best adjusted carburetor.

Carbon Monoxide Tests

Various reports are in circulation on the comparative amount of carbon monoxide produced by gasoline and L. P. gas engines. Several of these are based on laboratory tests, and they show a wide variation in results, all the way from twice to 20 times as much in the gasoline engine. To one who knows gasoline carburetion the reason for this extreme variation will be obvious. While it is not likely that very many engines will be encountered that will analyze out at either of the above extremes, the impressive thing is that every report shows advantages in favor of the L. P. gas engine.

Indoor operation is about the worst possible condition that we could devise for production of the maximum of carbon monoxide, because of the relatively high percentage of operating time that the engine is in the rich mixture range, either idling or accelerating. It is under these conditions that L. P. gas shows its greatest advantages in reducing the amount of carbon monoxide that is discharged into the atmosphere.

More important than the amount coming out of the exhaust is the percentage of carbon monoxide in the atmosphere. Where production is limited, as in the case of the LPG engine, the rate of conversion to harmless carbon dioxide may just about balance the rate of production, where with higher production there would be a build-up during the day. An example of this was shown in tests of the atmosphere in a warehouse in the Chicago area. While the fork lifts were operating on gasoline, tests showed a concentration of 0.02% of carbon monoxide. With the same trucks operating on propane the CO concentration dropped to 0.001%—a reduction of 95%.

It was noted above that carbon monoxide is colorless and odorless. The officials of Menasco Manufacturing Co., Burbank, Calif., stated after changing their fork lifts from gasoline to propane, that for the first time it was possible to see from one end of the factory to the other. They, and many others who have made the change, have commented that the change has eliminated the sharp exhaust fumes which have in the past reduced employe efficiency by irritating eyes, noses, and throats, occasionally producing nausea.

If the exhaust gases of gasoline engines reduce visibility and contain irritants, then they must contain something besides colorless and odorless carbon monoxide. Relating these observations to what we see and smell in our congested metropolitan areas subject to heavy automotive traffic, we may be quite sure that there is something besides carbon monoxide that makes exhaust fumes from gasoline engines obnoxious. Two of these exhaust ingredients deserve special mention.

The first we can see at any time in the exhaust of a gasoline engine that has just been started up when cold—finely divided carbon blowing out with the burned gases. After the engine is warmed up this black carbon is not so readily visible, unless the carburetor is badly out of adjustment. But we can still catch enough in a white cloth held over the exhaust stream for it to be clearly visible against the white background. With the light just right we can always see a little carbon coming out when the engine is accelerating.

The amount of solid carbon particles produced is related to the richness of the mixture. These carbon particles float in the air, and are one of the major constituents of the visible haze that we see in the atmosphere of factories and warehouses in which gasoline-powered trucks are operating. Physically this is probably the least serious pollutant, but the psychological effect on the employes is bad. L. P. gas produces much less free carbon than gasoline, hence it provides a better influence on employe morale.

Aldehydes

The second ingredient that we should consider in the exhaust stream is that which smells. We have all encountered it, in highly concentrated form, when we follow buses, trucks, and occasionally other vehicles through dense traffic that requires frequent deceleration. The puff of bluish-white smoke that comes out of the tailpipe during deceleration, and that is so hard on our eyes and noses, contains what is chemically described as "aldehydes."

These compounds are the result of partial oxidation of hydrocarbons in the fuel. The process is accelerated by heat and vacuum. It is worse with fuels of low volatility, but the amount diminishes as the volatility of the fuel goes up. It is least with the completely volatile L. P. gas fuels, butane and propane. There appears to be a crit-

ical balance point of temperature and vacuum for each degree of fuel volatility beyond which the production of the dense cloud of aldehydes takes place. This critical point becomes progressively higher as the fuel volatility improves. It has never been reported when an engine is operated on L. P. gas, so presumably the critical temperature-vacuum balance for this fuel is not reached during normal operation.

While the dense, irritating clouds of aldehydes are seldom encountered in operation of industrial trucks indoors, there are enough of these compounds created in any gasoline engine to produce noticeable irritants in confined atmosphere. While it is chemically possible that trace amounts of these irritants may result from the operation of engines on L. P. gas, they do not reach the perceptible level, so people working around the trucks report that the L. P. gas exhaust is both clean and odorless.

A Cause of Smog

(The aldehydes describes above are part of the same group which has been in the news recently in connection with smog research. The smog experts tell us that unaltered hydrocarbons passing into the air as unburned fuel from engine exhausts, and as fuel vapors lost when transferring gasoline from one tank to another, undergo oxidation from exposure to ozone (O_3, a highly active form of oxygen) and ultra-violet light, and are thus converted to aldehydes. Regardless of which way they are produced, the effect on the human system is the same.)

All operators of L. P. gas engines report greater cleanliness of lubricating oil, and an important saving in consumption and cost of oil. The latter is the result of the former.

Analyzing the factors contributing to the contamination of lubricating oil in fork lift engines, and the experience of numerous operators, we find that this type of service is hard on lubricating oil. With gasoline for fuel the rate of contamination is high.

A look at the operating conditions will tell us why. A high percentage of the engine's operating time is spent in the "rich" carburetor ranges —idling and accelerating, during which time the maximum production of free carbon takes place. A certain amount of this passes down into the crankcase, accompanied by the lead salts which result from the burning of the ethyl fluid contained in the gasoline. During these rich operating periods a certain amount of the excess gasoline also passes down the cylinder walls, part of which escapes through the crankcase breather, while some of the heavier components are absorbed in the crankcase oil and in the film on the pistons and cylinder walls. Some of this absorbed gasoline oxidizes into gummy compounds, which will adhere to polished metal parts and form what the mechanics call "varnish" unless the additives in the oil wash this off and hold it in suspension. These gummy compounds are acid in nature, and consequently reduce and eventually completely offset the alkalinity of the additives in the oil. When this alkalinity is overcome, the detergent action stops, and the gums can be deposited through the engine.

In the meantime, we have another contaminating influence at work. The normal products of combustion are water vapor and carbon dioxide.

Some of these also find their way into the crankcase. Because of low temperature operating periods, some of the water vapor condenses in the crankcase and absorbs carbon dioxide to form carbonic acid. This builds up an emulsion with the oil around the solid particles of carbon and lead salts—a condition quite similar to that found in mayonnaise. This forms the bulk of the grayish sluge seen so frequently in these engines.

Taken all together, these contaminants require frequent changes of oil in fork lift engines operating on gasoline. General practice seems to be to change oil at about 35- to 50-hour intervals—more rarely as high as 100 hours.

With LPG, operators seldom change oil at less than 200 to 350 hours of operation. The oil stays clear, showing no contamination. There are no lead salts and only minute amounts of free carbon to come down into the crankcase. The fuel is always completely vaporized before it enters the engine so there is no liquid fuel absorbed in the oil to oxidize later and form gums and varnish. Since these contaminants are not present in the oil, there is no nuclear matter present around which water of combustion can form sludge. Acidification does not take place, so the oil does not deteriorate in service. The only change shown by analysis is a slow increase in viscosity, which is generally compensated for by using a lower SAE number oil occasionally when it is necessary to add oil.

Several operators have reported changing oil in fork lift engines on the basis of laboratory analysis. Some have continued to use the same oil for as high as 3500 hours. This is equal to approximately 100,000 miles in an automobile. Lockheed Aircraft Corp., Burbank, Calif., reports 85% reduction of oil consumed by its 120 industrial trucks since converting to propane. Similar results have been shown in a number of smaller fleets. This is an important factor in operating economy that shows up regardless of where the trucks are used.

One of the important factors in connection with oil that is not immediately apparent, but which shows up over a long period of time, is that the rate of consumption in service does not go up with LPG as it does with gasoline. The conditions which produce wear in cylinders and rings—dirty lubricating oil and washing down with liquid gasoline—are not present with L. P. gas. This affects the rate of wear throughout the engine.

Numerous operators who have used LPG long enough to make determinations of comparative wear report that engines operate from two and one-half to five or even seven times as long on LPG before overhaul becomes necessary. Western Carloading Co., Los Angeles, which converted a Clark Dynatork in 1949, reports that this unit operated 8000 hours before overhaul, and the parts required cost only $35.

Other units of the same make and model on gasoline in this fleet required rebuilding at 2000 hours, with parts and machine work adding up to $250. This same company reports an annual saving in oil cost for four converted trucks at $128 per year, and the cost for spark plug replacement has completely disappeared. After more than four years the company is still using the plugs that were installed at the time of the conversion. ■

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"Every Sand Pit Operator Could Profit From Using LPG"

By Emmett Maum

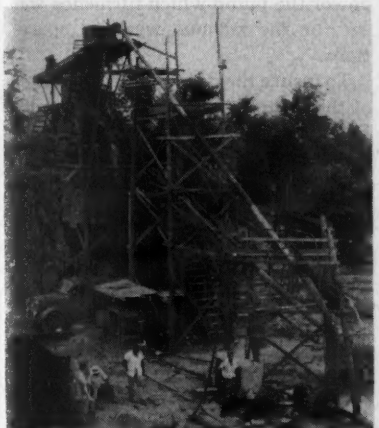
ONE factor in the rapid growth of LPG as an engine fuel can be traced to the many enthusiastic reports from companies who have converted from gasoline and have realized vast improvements in their operations due to the change. Such an organization is Banks Bros. of Arlington, Tenn., one of the leading suppliers of sand and gravel in the Mid-South.

Two years ago the company moved its dredging, pumping, and separating equipment to a new pit which gave promise of keeping the operation supplied with high grade material for several years. New pieces of equipment, including a Continental engine, a Minneapolis Moline 90-hp engine, and a six-cylinder Ford engine had been purchased, and the owners were anxious to realize as long a working life as possible from the new machinery with a minimum of maintenance.

John and Fred Banks had for some time studied the possibilities of adapting propane power to such an operation, and in an effort to get the maximum return on their investment in new machinery, decided to convert their engines to propane before going into operation. Considering the difficulty of keeping engines free of dirt and grime around a gravel pit, and the fact that LPG in this particular section of the country is much less expensive than gasoline, the decision appeared to be a very sound one.

Several other instances stemming from the conversions have come to light during the ensuing two years, and John Banks expresses his enthusiasm for the move in the following statement: "Every gravel and sand pit operator could profit from using L. P. gas. The changeover is relatively inexpensive, and the resultant benefits are many. We are especially pleased as we have not had to overhaul an engine since we converted to liquefied petroleum gas."

The Bank Bros. operation consists essentially of dredging sand and gravel from a pit and sucking it up through a pump. Part of the mixture



LPG keeps this sand and gravel pit operating at full speed. At right is the engine used for pumping gravel. Near the truck, which is under the bins awaiting a load of gravel, is the engine which generates electricity for the operation.

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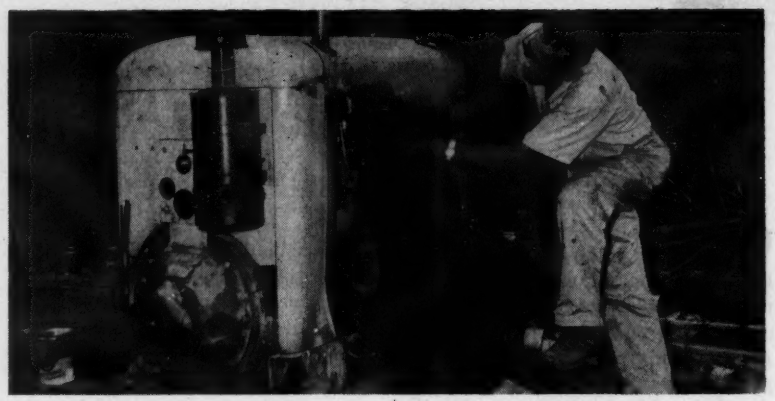
is separated on a motor-driven vibrator, the gravel falling into one bin and the sand into another. Some customers buy the mixture as it comes from the pit.

When separated, the gravel is washed to remove sticks and other foreign matter. In the process of preparing the gravel for market it is washed three times and then stored in bins until delivery. Three hundred to 400 tons of gravel are processed per day, and 500 to 600 tons of mixed sand and gravel are dredged and delivered each day. Some of the largest building firms in the area depend upon Banks Bros. for their supply of sand and gravel.



Checking the regulator on an engine is John Banks, one of the firm's owners. This engine powers the water pump for washing gravel.

The heart of the operation is a heavy duty Continental engine used for the generation of electricity. This propane-fueled unit furnishes power for the vibrator, sand drag, and the water pump, and when it is shut down for any reason, the entire operation comes to a standstill.

Almost as vital to the operation as the Continental engine is a Minneapolis Moline 90-hp engine which powers the gravel pump. The mixture is sucked out of the pit, through a centrifugal pump, and forced up an inclined pipe to the top of the processing structure, a height of about 47 ft.

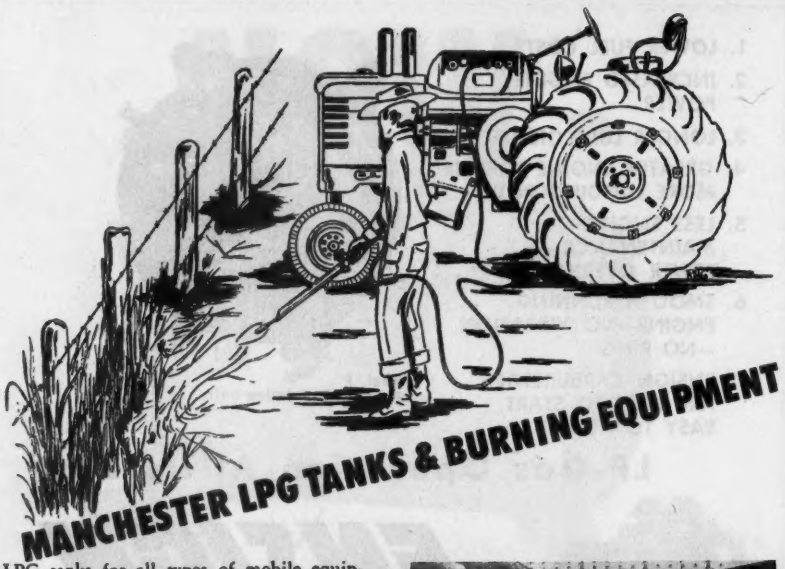
Powers the Pump

The third converted engine is a Ford six-cylinder engine used to power the pump which furnishes water for the various washing operations.

To insure the dependable operation of these three important power units Banks Bros. contacted the Tennessee Liquefied Gas Co. of Memphis at the time the engines were purchased, and arranged to have this experienced firm handle all details of the conversions. The total job, including three 1000-gal. LPG storage tanks and regulators on all the three engines, cost approximately $1500.

A special feature of this installation is a valve on each of the storage tanks which permits a quick switch from liquid gas to vapor. The former is used during cold weather, and in warmer weather vapor is used.

Greater economy of operation with the converted engines has been real-



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ized in many ways by Bank Bros. Fuel costs, for one thing, are much lower. LPG costs the company 14 cents per gal. in the winter and 11 cents in the summer. Gasoline in this section of the country is much more expensive. Mr. Banks estimates that the use of propane saves one-third of the fuel cost.

Four Week Oil Changes

Oil changes are made once every four weeks, which is much less frequently than if the engines were operating on gasoline. During this time the engines operate at full speed 10 hours per day. In terms of comparable mileage figures, this would mean oil changes every 20,000 miles.

One man has been able to do all the maintenance work on the entire job over the past two years. The owners state that if they had not converted to LPG another man would have been required to service the engines, fill the gasoline tanks, and remove the inevitable carbon formed by gasoline operation which continually hampers the engines and runs up operating costs.

The fact that lines run directly from the 1000-gal. storage tanks to the carburetors not only eliminates the messy, time-consuming job of fueling tanks, but also does away with another aspect of the operation which formerly detracted from the profits—theft of fuel. Hard-pressed, light-fingered motorists now have to look elsewhere for their free gasoline supply.

A Safety Factor

The use of LPG has also proven a decided safety factor. Some time ago when Banks Bros. was using gasoline for some equipment, a spark from a welding job flew into a bucket of gasoline that was used in refueling. The resulting flare-up badly burned a nearby employe. Had LPG been used at the time, this accident could not have happened.

In summing up the advantages realized from the conversion of the three engines. Banks Bros. reports that the lowered operating costs, reduced maintenance, assurance against shutdown of equipment, and safer working conditions for employes have many times offset the initial cost of the conversion. ■

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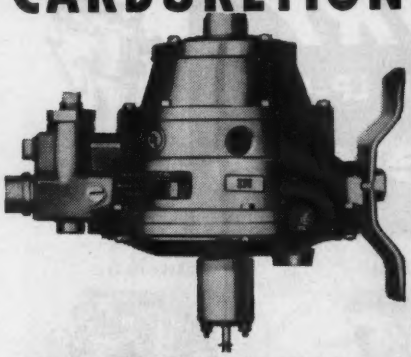

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Original Rings Last Nine Years With LPG in Sawmill Engines

By W. M. Massey

FOUR years ago Shamberger Lumber Co. decided that its engine, operating on L. P. gas for nine years, should need new rings. New sets were installed, although the mechanic found that the original rings were still in satisfactory condition.

Shamberger Lumber Co., Brandon, Miss., is one of the oldest users of L. P. gas as prime power at a lumber mill in the central Mississippi area. Owner C. H. Shamberger has three Minneapolis Moline engines that have been in continuous use for 13 years. These include a 25-hp engine on the trim saw, a 65-hp on the fan for the blow pipe system, and a 100-hp MM that powers the Yates A-20 planer.

During a peak period a few years ago the mill operated 24 hours a day, six days a week on 1000 gal. of propane. During normal operations at the present time 300 gal. of fuel trim and plane 150,000 board feet of yellow pine lumber.

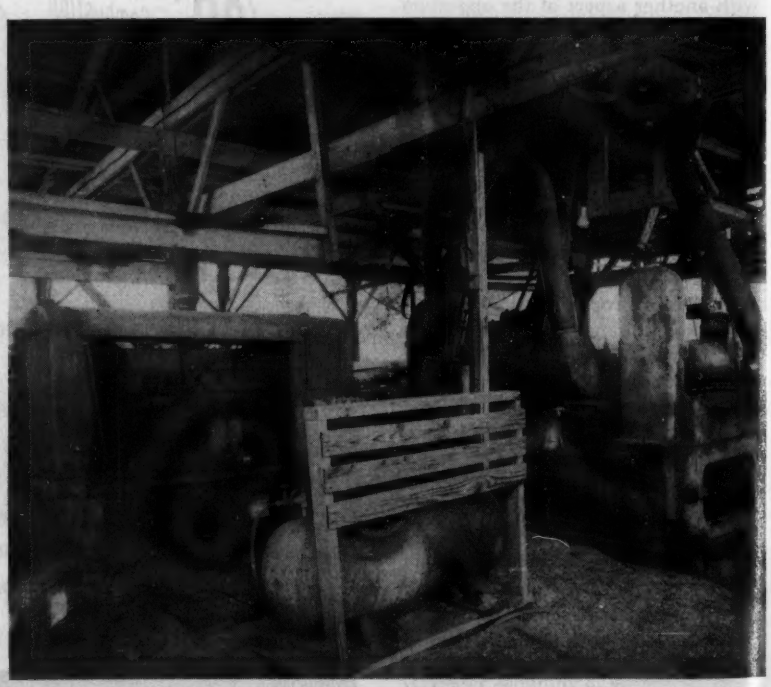
Since the engines have always used L. P. gas as fuel, Mr. Shamberger has no previous records of other fuels or power sources to compare with, but in checking with similar operations on diesel and electric power he believes his fuel cost per 1000 board feet is the lowest in the territory.

Mill Superintendent Vernice Richardson says maintenance and oil costs are a negligible factor. Oil is changed every six months.

Mr. Richardson is also convinced that L. P. gas provides more power at less cost than any other source available in that area.

Even with 13 years of operation it is still not possible to estimate the life of the engines. Mr. Richardson reports that they still start with one turn of a crank any season of the year. As a reliable service guarding against operating loss due to breakdowns, the present system cannot be surpassed.

Fuel is handled through underground pipes from a 1800-gal. capacity tank serviced by General Gas Corp., Jackson, Miss. On a year around basis fuel averages 10½ cents per gallon. ■



A 100-hp MM engine powers the planer at Shamberger Lumber Co., Brandon, Miss. Hand crank starts the engine with one turn after 13 years of continuous use.

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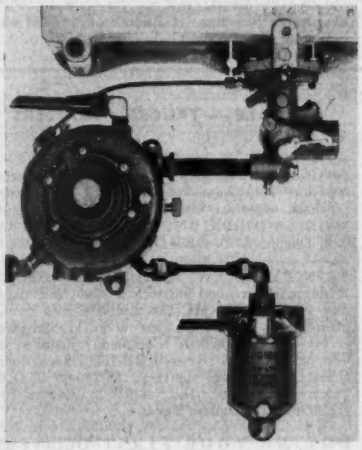
To secure further information on these products, refer to coupon on page 83.

16. Fork Lift Carburetion



Used in the conversion of fork lift and industrial trucks to L. P. gas is the Ensign Model W vaporizer-regulator unit pictured above. This unit has a capacity of 55 hp and provides the engine with a constant flow of dry gaseous propane vapor which, when carbureted in the Ensign Model G1, produces a good mixture for combustion.

These mixtures are good for in-plant operation among heavy concentration of personnel wherein noxious odors and excessive carbon monoxide would produce a hazard.

The Ensign Model W takes liquid propane at tank pressure, converts it to a vapor, and reduces the final outlet pressure to slightly below atmosphere so that when the engine is shut off, the entire carburetion system automatically is locked up. The Model G1 carburetor is equipped with interchangeable venturi and economizer together with Ensign's patented easy starting device.

Ensign Carburetor Co.

17. Tractor

Minneapolis-Moline has announced a five-plow GB tractor for gasoline and L. P. gas.

Greatly increased horsepower, stepped-up speeds, higher operating efficiency, more ease and convenience for the operator together with fenders newly designed for his protection are among the values of the GB.

Power ratings, estimated by MM engineers, are: 74 belt hp and 64

Equipment for every LP-Gas conversion

WITH ALGAS THE ONLY COMPLETE LINE

★ FORK LIFT TRUCKS
★ TRACTORS ★ TRUCKS
★ BUSSES ★ TAXICABS
★ PUMPING STATIONS
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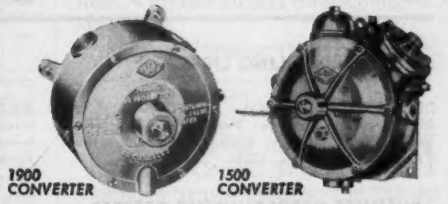

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AMERICAN LIQUID GAS CORPORATION
1109 Santa Fe Avenue
Los Angeles, California

For vapor conversions, the Algas vapor conversion kit No. VK-115 is practical and economical. Liquid conversion kits also available.

THE $ NEATEST LP GAS CONVERSIONS ARE J&S

FORD V-8 — MERCURY CONVERSION UNIT BOLTS ON CYLINDER HEAD

- No Mounting Problems
- No Clutter of Hoses
- Low-Cost Sandwich Adapter or Carburetor Spud-in
- Top Performance and Economy

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J.&S. CARBURETOR COMPANY
P.O. BOX 10391 DALLAS, TEXAS
"TWENTY YEARS IN GAS CARBURETION"

BPN CLASSIFIED Advertising

All Classified Advertising payable with order. Copy must reach publisher's office prior to the fifth of the month preceding publication. Address: Classified Advertising Material, BUTANE-PROPANE News, 198 S. Alvarado Street, Los Angeles 57, Calif.

DISPLAY CLASSIFIED

$12.00 a column inch per issue. Choice of 18, 14, 12, 10 pt display type for headlines. Set with 1 pt border. Maximum ad size 3". No cuts permitted. Publisher will set ad for maximum effect in space purchased.

UNDISPLAYED CLASSIFIED 15¢ a word. Set in 7 pt type without border. $3.00 minimum charge per insertion. If Blind Box number care of B-P News is used, count as five words.

MAILING LISTS

MAILING LISTS OF LPG DEALERS; Marketers and Jobbers; Fuel Oil Dealers, etc. Write: Oil Industry Mailing List Co., 405 Tuloma Bldg., Tulsa, Okla.

BUSINESS OPPORTUNITIES OFFERED

LPG BULK PLANTS. WE SPECIALIZE IN petroleum properties throughout Midwest. Have number desirable plants for sale. Additional properties needed. PETROLEUM MARKETERS, 605 Produce Bank Bldg., Minneapolis, Minn.

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PROFESSIONAL SERVICES

ASSURE MORE PROFITS BY METHODS developed over 26 years. Property appraisals. Revised sales plans. Floyd F. Campbell, Management Counselor, 821 Crofton Ave., Webster Groves, Missouri.

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Ammonia and LP Gas Plants
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& Assoc., Inc.
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KRAFTBILT BUSINESS RECORDS increase your profits—improve your credit—help boost sales. That's why KRAFTBILT LP-Gas Forms are used by more LP-Gas dealers than any others. Simplify your office work—use KRAFTBILT simplified forms. Approved by your Association. Highly recommended by outstanding LP-Gas suppliers. Don't wait! Send postcard now for LP-Gas Forms Catalog. ROSS-MARTIN CO., P.O. Box 800-S, TULSA 1, OKLA.

HELP WANTED

WANTED: SALESMAN FOR LP GAS APpliances and systems. Territory, northern Georgia. Salary or commission, with or without auto furnished. Reply Box 120, BUTANE-PROPANE News, 198 S. Alvarado St., Los Angeles 57, Calif.

MANAGER FOR NEW ENGLAND L-P DIStributor. Must have service and delivery supervisory experience with proven sales ability record. Permanent position in New England area for properly qualified man. Salary, or salary and incentive. Also need a man with some L-P experience to train for responsible managers position. Write, giving full details, to Box 115, BUTANE-PROPANE News, 198 S. Alvarado St., Los Angeles 57, Calif. All replies held in strict confidence.

LINES WANTED

FACTORY REPRESENTATIVE IN INTERmountain Area desires additional gas appliance and heating lines. Long experience in sale of appliances and equipment in gas and LP-Gas fields. Write Box 15, BUTANE-PROPANE News, 198 S. Alvarado St., Los Angeles 57, Calif.

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time sales representative for your products throughout Canada? Am well acquainted over a period of years. Appreciate your full proposal.
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PAN AMERICAN FIRE & CASUALTY COMPANY
T. E. Gammage, Sr., Pres.
P.O. Box 1662 Houston, Texas

FOR SALE — TRUCKS - TRAILERS

5,000 GALLONS TWIN TRANSPORT—U-68 construction, together with a 50-T Mack—carburetion equipment—saddle tanks—fire extinguishers — perfect condition — price $8,995.00. PALMER DISTRIBUTING COMPANY, Box 232, Telephone 56, DEMOPOLIS, ALABAMA.

TRINITY'S NEW EXCLUSIVE MODEL #106 with sectional skirting - 1700 WG capacity W-250 - ICC MC-330 complete with pump, printometer, remote Okadee valves, clutch, power take-off and throttle. Completely installed on new factory LPG powered RP-162 International chassis. Immediate delivery, $5,100.00 F.O.B. Trinity Steel Co., Inc., 3301 S. Lamar St., HUnter 8321, Dallas, Texas.

BUYING YOUR FIRST DELIVERY truck tank? Get the facts on Trinity's New Model #104 Twin 1400 WG capacity 250# WP complete with pump, printometer, hose, plumbing, etc., installed on new 1954 135 HP Chevrolet chassis—ready to haul gas today—$4,300.00 F.O.B. Trinity Steel Co., Inc., 3301 S. Lamar St., HUnter 8321, Dallas, Texas.

NEW: IMMEDIATE DELIVERY, 1400 WG U69 propane extra lightweight twin barrel delivery unit. Mounted on new 1954 2-ton, 2-speed Chevrolet truck with big engine. Fill and vapor hose assemblies—Viking Mechanical Seal Pump —Power take-off assembly and motor fuel tank. READY TO GO FOR $3970.00 tax paid. Also available at low extra cost: meters, fire extinguisher and L. P. carburetion. American Tank & Manufacturing Co., 2136 West Commerce Street, Dallas, Texas. P. O. Box 5525. Telephone Riverside 9183.

USED INT. L-162, 2 SPEED AXLE, PROpane carb., heater with BRAND NEW, Model 100, 1400 W.G. twin PROPANE TANK. Truck in good shape with 34,000 miles. Only $2,375.00. Can plumb to your specifications at regular prices. White River Distributors, Inc., Phone 570, Batesville, Ark.

COMPARE OUR PRICES: 1955 2-TON Chev., big engine, 2 speed axle, 825 rear tires, piped complete with Viking mechanical seal pump, P.T.O. shaft, Model 100, 1400 W.G. twin PROPANE TANK, 50 ft. hose, painted with lights, ONLY $3,875.00. Same equipment on 1955 International RP-162, factory equipped for L.P.G. Only $4,085.00. White River Distributors, Phone 570, Batesville, Ark.

1800 W.G. TWIN PROPANE TANK WITH large, deluxe cabinets on each side, mounted on 1955 Int. RP-172, 2½ ton, with BD-282 oversize, factory equipped for L.P.G. engine, Viking mechanical seal pump, 50 ft. hose, painted with lights, and piped complete, ONLY $5,095.00. Meters, hose reels and other extra equipment available at attractive prices. White River Distributors, Inc., Batesville, Ark. WE SAVE YOU MONEY.

BUYING YOUR FIRST DELIVERY TRUCK? We can save you money—give you immediate delivery—finance on easy terms with no red tape—and give you many money saving ideas on the operation of your bulk deliveries. Let our many years of experience in the L. P. Gas business help you. 5 Models to Choose from. 600 to 2,400 W.G. twin or single barrel. White River Distributors, Phone 570, Batesville, Ark.

CLASSIFIED ADVERTISING

FOR SALE—TRUCKS-TRAILERS - Cont.

FOR SALE: 1951 FRUEHAUF TRAILER, 6060 water gallon twin barrel propane tanks, cab over White tractor on propane in A-1 condition. If interested will send picture and price. E-Z Gas Inc., Goshen, Ind.

PROPANE TANK TRUCK FOR SALE—Single barrel, 1600 W.G.-1942 GMC 6x6 Military vehicle with closed cab. Tank built 1952 by McNamar-Crawley, Salem, Illinois. Equipped with Viking mechanical seal pump, 50 ft. of liquid and vapor hose. Chassis in good mechanical condition and equipped with propane carburetion; has fair rubber. Price $1850.00. Terms available. IMPERIAL OIL CO., Box 542, Owensboro, Kentucky.

FOR SALE: FULLY EQUIPPED Propane-Butane Delivery Truck; '48 Chevrolet; 2-Speed Axle; 1350-Gal. Tank, Neptune Meter, Smith Pump; Strainer, Bypass, Regulator, Flaps, Clearance Light, Extinguisher, Hoses. All LPG equipment new April '54. Used two months. Available Fresno. H. L. Gardner, P.O. Box 1100, Coalinga, Calif. Phone 1032-J.

SPECIAL: AMERICAN "BETTER-BILT" extra lightweight 1500 water gallon U69 propane twin barrel delivery unit, with Viking Mechanical Seal Pump—Neptune Print-O-Meter—fill and vapor hose assembly—mounted on new 1954 2-ton, 2-speed GMC chassis with 8.25 tires—READY FOR SERVICE. PRICED AT $4475.00 tax paid FOB Dallas. Other sizes available at comparable low cost. American Tank & Manufacturing Co., 2136 W. Commerce Street, Dallas, Texas. P. O. Box 5525. Telephone Riverside 9183.

FOR THE BIG HAUL . . . NEW 1800 WG U-69 NOR-TEX twin delivery unit. Equipped for service with trim skirting, 50-gallon recessed fuel tank, ICC lights, Viking mechanical seal pump, P.T.O. and splines jack shaft. Mounted on brand new factory LPG powered International RP-172 chassis with the big 282 LPG engine. 5th overdrive transmission, two speed axle, 9:00 tires all around, heavy duty rear springs. All ready to start delivering gas for only $5,125.00. including taxes, F.O.B. Denton. Call NOR-TEX PRODUCTS COMPANY collect, C-5416, Denton, Texas.

REAL SAVINGS ON COMPLETE PACKAGE UNIT FOR IMMEDIATE DELIVERY. 1400 WG U-69 twin delivery unit with trim skirting, mounted on new 1954 factory LPG powered International, RP-162 chassis. Two speed axle, 50-gallon recessed fuel tank, P.T.O., splines jack shaft, Viking mechanical seal pump, 50' filler hose and ICC lights. Painted gleaming aluminum over red oxide. Ready to start making you money for only $4,085.00, including taxes, F.O.B. Denton. Meters, fire extinguisher and cabineting available at low extra cost. Call NOR-TEX PRODUCTS COMPANY collect, C-5416, Denton, Texas.

NO, WE DON'T SPEND OUR MONEY FOR high priced salesmen—costly convention "parties"—overpaid executives, sales promotion managers, engineers and other unnecessary overhead. We are in the gas business and know how to assemble tank trucks that "get the job done." The BIG SAVINGS we make by elimination of unnecessary overhead are PASSED ON TO YOU. This is the reason our tank truck sales have increased over 100% in the past year. Sound logic? Try us and see for yourself. Call Preston W. Grace, owner—advertising manager—sales manager—production manager—purchasing agent, the ONE MAN that sees that every job goes out of the shop ready to deliver gas as it should. White River Distributors, Batesville, Ark.

5500 WATER GALLON U69 TANDEM Propane Twin Barrell Trailers. Your choice of 14, all with Budd Wheels, 50%, 10:00 x 20 tires, air brakes, now operating. Texas R. R. Commission, ICC and ASME apporved prices from $3,750.00 and $4,500.00. Write for pictures and details. Irvin F. Nelis Associates, P.O. Box 14472, Houston, Texas.

FOR SALE—TRUCKS-TRAILERS - Cont.

FOR SALE—1948 KBS7 1450 W.G. U69 ENsign Neptune Meters. 1948 KB-8 3-Speed Brownlite 1950 W.G. U-69 SLICK. George Self Butane, Ponca City, Oklahoma.

2720 W.G. SUPERIOR 250# TWIN PROpane transport 900. Tires, air brakes, good condition with fair rubber. Okla. tag. Price $2000.00 without tractor. Kiowe Gas Co., Hobart, Okla.

FOR SALE — MISCELLANEOUS

DECALS MADE FOR TRUCKS, EQUIPment. Small or large quantities. Catalog free. Mathews Co., 827 S. Harvey, Oak Park, Ill.

FOR THE BEST TRUCK TANKS—STORAGE TANKS—DOMESTIC TANKS—Call or write Master Tank & Welding, P.O. Box 5146, Prospect 2441, Dallas, Texas.

THIS YEAR GIVE YOUR CUSTOMERS Safety and Economy. Refer to Krug Vapor Pump Ad, page 124, or write to Krug Manufacturing Company, Madison, South Dakota.

METER PROVER CHEAP — AMERICAN Meter Company 5 foot complete, lower 2½ feet dented but top 2½ feet accurate. $100.00 crated f.o.b. Manitowoc, Wisconsin.

FOR THE BEST TRUCK TANKS—STORAGE TANKS—DOMESTIC TANKS—Call or write Master Tank & Welding, P.O. Box 5146, Prospect 2441, Dallas, Texas.

FREE FREE FREE
With purchase of six (6) "Leak Detecto Brushes" at $3.75 each, Free: one gallon Detecto Solution. For limited time. Gas Appliance Stores, Inc., Box 5057, Columbia, S. C.

FOR SALE: PIPE THREAD COMPOUND. Due to a special purchase we can supply you with a quality compound at a real savings. 25# pail only $6.25. 100# or more prepaid. Cash, no C.O.D. SOUTHWEST GAS EQUIPMENT, Liberal, Kansas.

FOR THE BEST TRUCK TANKS—STORAGE TANKS—DOMESTIC TANKS—Call or write Master Tank & Welding, P.O. Box 5146, Prospect 2441, Dallas, Texas.

FOR SALE—IMMEDIATE DELIVERY! Eureka Smokehouse Burner Assemblies! For meat smoke houses using bottled gas. Completely automatic. Clean filtered smoke. Distributes heat uniformly. Low gas consumption. Automatic temperature and pilot control. Less product shrinkage. Easily installed. Write for descriptive pamphlet. Eureka Equipment Company, P. O. Box 396, Beloit, Wisconsin.

FOR SALE—BAKER HYDRAULIC ALCOhol pumps for injecting alcohol into propane-butane cylinders—against pressure. Only pump of its kind. Chosen by leading LP-Gas servicemen throughout the world. Sure cure for moisture trouble. Cost so little, saves so much service. Equip every truck with one. Send check or money order (No C.O.D.) for $44.95 to Baker Engineering, Malone , N. Y.

SERVEL Gas Refrigerators

Now available in quantity. Used, in perfect operating condition. Clean, attractive, complete.

S600A (1948)	6 cu. ft. at	$42
S400A (1948)	4 cu. ft. at	30
L400	4 cu. ft. at	18

Low Delivery Cost Anywhere

Other models available. Send for illustrated folder NOW and be ready for your Spring selling season.

BEACH REFRIGERATOR CO.
196-11 Northern Blvd., Flushing 58, N. Y.
Phone FLushing 7-6161

drawbar hp on the L. P. gas model; 70 belt hp and 61 drawbar hp on the gasoline model. The four-cylinder engine has 4⅝-in. bore, 6-in. stroke, and piston displacement of 403 cu in.

The five forward speeds are increased to 2.7, 3.8, 4.4, 6.3, 14.8 mph, with reverse speed of 2.1 mph.

Normal governed speed is increased to 1300 rpm from 1100 rpm. Compression ratios are 8.1 to 1 in the L. P. gas model. Pistons are of aluminum, with one oil and three compression rings.

Minneapolis-Moline Co.

18. Engine

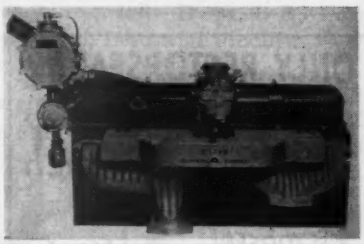
Reo Motors has introduced a new V-8 "Gold Comet" engine which is available in two models—the 195 hp and the 200 hp.

According to the company, the engine's weight, which is only 1211 lb, makes it the lightest heavy-duty engine now on the market. It is also said to be the shortest in length, 39½ in. overall.

Reo offers both models of the new engine factory-equipped for LPG.

Reo Motors Inc.

19. Dual Manifold



Recent development for use with butane operation is the Ellis "Dual-exhaust" manifold. Especially desirable on butane motors due to the reduction of backpressure, the "Dual-ex" manifold practically eliminates valve stretch and increases horsepower 10% to 20%.

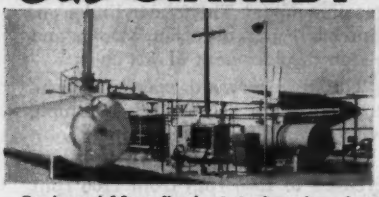
It is claimed that it will save many hours on long hauls. In addition, there is a savings on repair bills and fuel.

Simple to install, the manifold is engineered with the installation man in mind, as in most cases no cutting or welding is necessary, and, as a rule, stock header pipes and muffler are used. It is adaptable to either butane dual or single carburetion.

Ellis Manifold Co.

Success always travels in the direction we are going. It cannot be met; it must be overtaken.

GAS STANDBY



Packaged 12 mcfh plant designed and built by Draketown for...

- ★ Utility or Industrial standby
- ★ Peak shaving and augmentation
- ★ 100% Town or plant supply

A Packaged Draketown Propane Plant will help you reduce demand charges; provide a supply of gas during curtailment periods... at the turn of a valve... or supply that outlying section or plant 100% if desired.

DRAKETOWN 1929 PROPANE PLANTS

"Good Gas Insurance"

If you have a gas problem, we can help you. We operate from coast to coast and overseas.

Phone or write today—no obligation.

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In thread compounds, Rectorseal #2 leads the field in quality.

Just consider these advantages:

Thin in the can, it's easier, more economical to use. Thick in the joint, it holds pressures to 11,350 psi. Insoluble in LP-G, natural and manufactured gas —all petroleum fractions, and anhydrous ammonia. Never hardens, crumbles, cracks or gets brittle. Holds odorants. Ideal for all gas industry thread joints. Conveniently packaged in brush-top cans for easy, economical application.

Prove to yourself, "there's no seal like Rectorseal" in price or quality. Your supply house has it or can get it for you.

Write for free sample and additional information.

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2215 Commerce St. Houston 2, Texas

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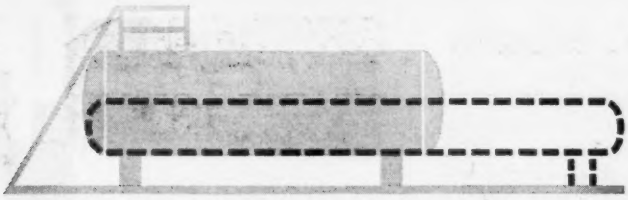


New 30,000 GALLON "SPACE-SAVER" *takes 30% less space*

ONLY acf OFFERS ALL THESE FEATURES

Complete Stress Relieving eliminates stresses set up during forming and welding . . . provides resistance to fatigue caused by temperature changes or pulsating loads.

Complete Radiography of every welded seam assures freedom from slag inclusions, porosity and undercutting.

Hartford Steam Boiler Inspection in accordance with ASME 1952 Code W-XR-SR.

Steel Grit-Blasting of tank exteriors to remove mill scale, resulting in a smooth surface for red lead primer.

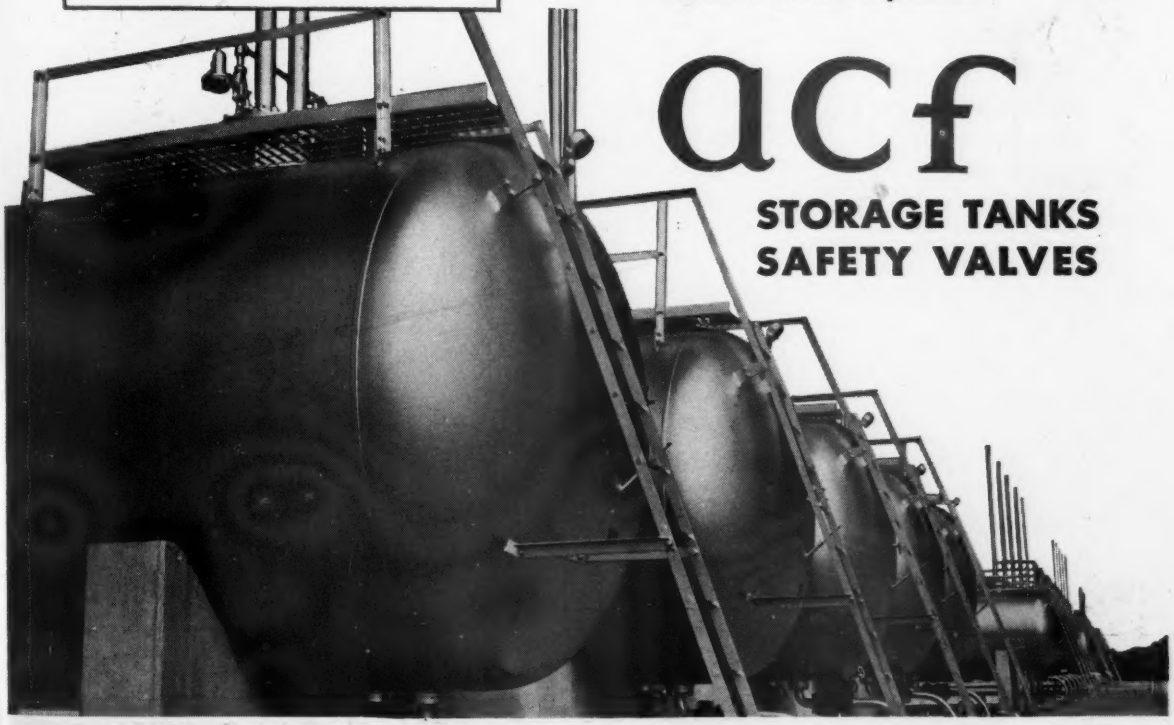
Manway for thorough internal inspections and cleanings.

Steel Saddles and Supports for installation on flat foundations are optional.

Newly designed acf Storage Tanks feature a 50-foot length . . . as compared against the usual 71-foot length of 30,000 gallon capacity tanks. These new larger diameter tanks require far less installation space . . . permit shipment on a single car . . . allow cross-loading on export barges. They weigh only 67,000 pounds, resulting in more economical shipping, rigging, handling, and installation.

acf Tanks are available for L-P gas, anhydrous ammonia, and other gases or liquids under pressure. For more specific details, write or call: Dept. 1-B, acf Industries, Incorporated, Industrial Products Division, 30 Church Street, New York 7, New York.

Proportionately Shorter Tanks for Smaller Capacities



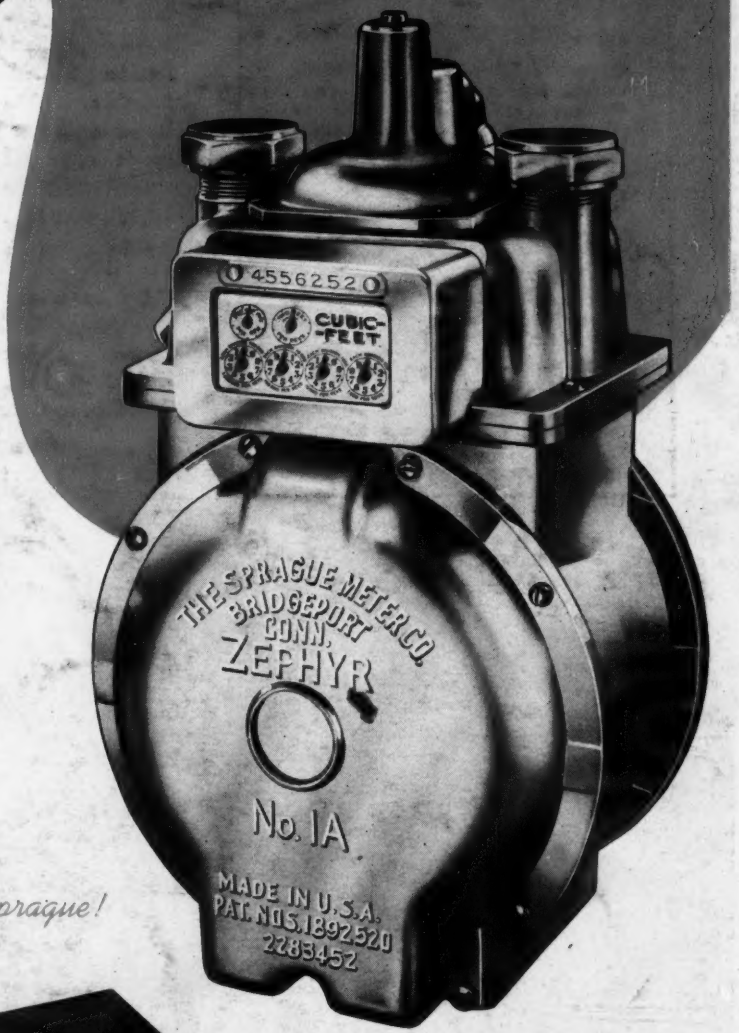
acf

STORAGE TANKS
SAFETY VALVES

recommended:

Sprague

COMBINATION METER and REGULATOR



For multiple sets with LP-Gas single tank installations. Save on initial costs — this single, compact combination unit costs less than meters and regulators purchased separately. Light, small and easy to install — and like all the Sprague products, field proven for accuracy and dependability.

Plan to Save with Sprague!

THE Sprague METER COMPANY
BRIDGEPORT, CONNECTICUT

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